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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

JANUARY 1950

Volume I No. 1

WASHINGTON: 1950

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PREFACE

This is the first edition of the CLIMATOLOGICAL DATA, NATIONAL SUMMARY. Most of the material printed herein was formerly published in the Weather Bureau's technical publication, MONTHLY WEATHER REVIEW. The new publication is designed to summarize on a national scale various state CLIMATOLOGICAL DATA and to include material not conveniently presented in the individual state bulletins.

GENERAL SUMMARY OF WEATHER CONDITIONS DURING JANUARY 1950

For the second consecutive year January weather was characterized by marked extremes in different parts of the country. The most outstanding features were the unusual warmth in the East, the severe cold and heavy snowfall in the northern Border region west of the Great Lakes, and heavy precipitation between the Great Plains and the Appalachians.

The combination of heavy precipitation in the Mississippi and Ohio Valleys and unusual warmth throughout the East are not rare during January having occurred several times in past years, notably in 1890 and 1937, and may occur any time the Bermuda High occupies a position westward of its normal position as it persistently did during January 1950. Eastward moving LOWS were deflected northward and cold air masses were blocked or partially blocked between the Mississippi and Appalachians where overunning of the cold air by the warm, moist Gulf air resulted in copious precipitation.

This was the warmest January on record in the southeastern portion of the country, the second warmest in the States of Florida, Ohio, Delaware, and Pennsylvania, and the third warmest in Indiana and New Jersey. The following table shows the states recording their warmest January in 1950 and also their second and third warmest Januarys and the years of occurrence.

WARMEST JANUARYS
(Based on State averages)

Record began	State	Warmest of Record Avg.	Dept.	Yr.	Second Warmest Avg.	Yr.	Third Warmest Avg.	Yr.
1884	Ala.	60.2	+13.3	1950	58.7	1937	56.1	1890
1892	Ga.	59.6	+11.4	1950	58.1	1937	55.6	1949
1889	Ky.	45.4	+9.5	1950	44.9	1932	44.0	1890
1891	La.	62.5	+10.9	1950	60.7	1907	59.1	1937
1895	D.C.	45.2	+11.7	1950	44.4	1932	41.6	1937
1888	Miss.	59.4	+12.0	1950	58.2	1890	56.0	1907
1887	N.C.	53.0	+11.2	1950	51.8	1937	50.5	1890
1887	S.C.	56.2	+10.0	1950	55.6	1937	54.6	1932
1891	Va.	47.9	+11.2	1950	46.9	1932	45.5	1937
1891	W. Va.	45.2	+12.3	1950	43.4	1932	43.2	1937
1883	Tenn.	50.0	+10.7	1950*	48.2	1907	48.0	1937

* Also 1890

The following states also established new all-time extreme maxima for January: Mississippi, 89° at Duck Hill on the 25th; Maryland, 83° at Westernport on the 26th; Michigan, 72° at Ann Arbor on the 25th; Delaware, 78° at Lewes on the

26th. In addition, Virginia's 82° at Ashland on the 26th and Ohio's 79° at Gallipolis, Chesapeake, and Portsmouth on the 25th equaled previous records for those states. A few of the Weather Bureau Stations whose average January temperatures were the highest of record and exceeded the normal by 11° to 16° were Birmingham and Mobile, Ala.; Meridian, Miss.; Washington, D.C.; Columbia, S.C.; Raleigh, N.C.; Richmond, Va.; Parkersburg, W. Va., and New Orleans, La.

Many stations located outside the States listed in the table, as far west as Missouri and northward to the Canadian Border, established new maximum January temperature records for particular dates and a few recorded their extreme maximum for January. On the 24th Columbia, Mo. recorded a new all-time January maximum of 78.2°. On the 25th temperatures of 80° at Washington, D.C.; 85° at Shreveport, La.; 71° at Indianapolis, Ind.; 74° at Columbus, Ohio; and 78° at Parkersburg, W. Va., were the highest ever recorded during January at those stations. The 74° recorded at Columbus, Ohio was also higher than any temperature ever recorded during December or February at that station.

In the northern Great Plains and far western states average temperatures for the month were below normal with departures in the Northern Border Region ranging up to as much as 30°. The severity of the weather from northern Minnesota westward to the Pacific Coast equaled and in some sections surpassed that of January 1949. Like the preceding January the severe cold persisted throughout the month with daily mean temperatures ranging as low as 40° below normal. Montana reported no fewer than 9 cold waves during the month, and the average temperature for the month at Outlook was -17.7°. Near-record extremes occurred at a number of stations throughout the area. The -41° recorded at Newport, Wash. on the 30th was within 1° of the lowest temperature ever recorded in the State. Chester, Mont. recorded -57° on the 25th, a temperature only 9° higher than the all-time low for the United States. Minima of -51° were recorded at Elbowoods, N. Dak. on the 26th and at Meadowlands, Minn. on the 30th and minima as low as -40° or lower were recorded in northern Michigan and Wisconsin.

Record snowfall and frequent high winds added to the severity of the weather. Blizzard conditions were frequent in North Dakota and near-blizzard conditions prevailed on several days elsewhere throughout the region of severe cold. Spokane, Wash. reported a record 16-inch snowfall in 24 hours on the 13th, and the total fall of 57 inches for the month was greater by about 20 inches than that of any previous month of record. Seattle, Wash. experienced the coldest and snowiest January on record with measurable snowfall on 17 days and a maximum depth of 10 inches on the ground establishing new records for January. Average snowfall for Washington and Idaho was the highest of record for January, and many stations eastward to the Lake Region reported record January totals and record depths on the ground. Roads and highways were closed at intervals throughout the month and schools in many areas were forced to close for several days. Frost penetration was 6 or 7 feet in some sections of northern Montana, and ice on the Missouri River was 30 inches thick.

During the first decade a severe cold wave moved into the far Southwest bringing record or near-record low temperatures to southern California and southern Arizona. Citrus suffered considerable damage in Arizona's Salt River Valley, and unheated citrus groves were damaged in the Los Angeles and San Diego areas of California.

The week ending on the 17th was unusually stormy in the northern sections of the country. On the 13th occurred one of the Northwest's worst winter storms. This storm attained its greatest intensity in the State of Washington where heavy snowfall and high winds with gusts at times reaching hurricane force prevailed for a period of 12 to 15 hours. The high winds were felt as far south as northern California, establishing a record speed of 50 m.p.h. at Red Bluff. Eleven lives were lost in the State of Washington and widespread damage including damage to harbors totaled near a million dollars. At practically the same time a severe storm centered over the Lake Region caused damage throughout most of the northeastern quarter of the country. Wind gusts up to 75 m.p.h. were measured in New York City and extreme gusts exceeding 90 m.p.h. occurred at several points in the western portion of the State.

The week ending on the 24th was warm and windy in the Southwest and lower Great Plains. Temperatures rose to near-record levels for the season and a number of severe dust storms occurred in the central and southern portions of the western Great Plains. During the same week a cold Canadian air mass overspread the eastern portion of the country causing 1 or 2 days of moderately cold weather in the northeastern quarter; freezing, however, did not occur farther south than the northern portion of the Southern States. The last week was cold throughout the West and extremely warm in the East, with average temperatures for the week ranging from 18° above normal at many eastern stations to as much as 30° below normal at a few stations in the extreme Northwest. Marked fluctuations of temperatures occurred in the central Great Plains area.

Fortunately the heavy rains in the Ohio and Mississippi Valleys were well distributed in point of time thus averting disastrous floods like those of 1890 and 1937 when monthly totals of precipitation were about the same but were mostly concentrated in a shorter interval of time. As it was, many streams were above flood stage throughout the month.

Precipitation was much below normal in the Southwest, the central and lower Great Plains, and along the Atlantic and Gulf Coasts. This was the driest month on record in Florida, with 30 stations in the State receiving no precipitation. In the lower Great Plains several stations received no precipitation and a large part of that region received less than 10 percent of its normal January precipitation.

Ice storms were generally neither as widespread nor as severe as during January 1949, although occurring rather frequently in the extreme northeastern States with the usual inconveniences to transportation. Orchards were damaged in western Oregon by one of these storms on the 19th, and another was rather severe in portions of Arkansas, eastern Oklahoma and northeastern Texas on the 30th.

Small grains were protected by a heavy snowcover in the Northwest and extreme north-central areas. They appeared to be in a satisfactory condition in the central Great Plains even though the ground was bare much of the month, but were rather badly in need of moisture in the southern portion of the western Great Plains. Advanced growth of these crops in the South caused some concern over their susceptibility to later freeze damage, while some fields in the Ohio and Mississippi Valleys suffered water damage. The weather was too warm in the South to effectively control insect life, and also caused a too rapid advancement of fruit which was beginning to bloom in some sections. The drought in Florida resulted in poor growth of non-irrigated citrus.

NOTE: For details on flood and storms see articles: "Rivers and Floods" and "Severe Local Storms."

CONDENSED CLIMATOLOGICAL SUMMARY

STATES

Table 1 — JANUARY 1950

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	60.2	+13.3	6 stations	83	†16	2 stations	22	8	4.58	-0.28	Barton	17.06	Newton	0.61
Arizona	41.0	-.2	Sabino Canyon	89	20	Maverick	-18	†14	.61	-.70	Workman Creek	4.19	2 stations	.00
Arkansas	47.2	+6.0	Searcy	87	25	5 stations	6	4	9.63	+5.19	Newhope	16.43	Madison	3.27
California	39.5	-4.7	Indio Date Garden	87	22	Boca	-35	15	5.67	+1.69	Gasquet	29.93	6 stations	.00
Colorado	24.6	+.7	Las Animas, 1N	81	23	Taylor Park	-35	†6	1.09	+.30	Wolf Creek Pass	6.95	Eads	.00
Florida	68.2	+9.0	4 stations	87	†16	Milton Exp. Sta.	33	8	.39	-2.37	DeFuniak Springs	3.11	30 stations	.00
Georgia	59.6	+11.4	Hawkinsville	86	17	Blairsville Exp. Sta.	16	[illegible]	1.83	-2.31	Flat Top	13.19	2 stations	.04
Idaho	18.9	-4.6	Riggins R.S.	61	20	New Meadows R.S.	-40	31	3.25	+1.24	Roland West Portal	11.50	Hamer, 4NW	.34
Illinois	33.9	+6.0	2 stations	76	†24	Freeport	-13	19	7.10	+4.68	New Burnside	17.70	Rockford	1.93
Indiana	37.3	+8.1	Bloomington Ind. U.	78	†25	Waterloo	0	8	10.23	+7.08	Cypress Dam 48	15.43	Whiting	3.21
Iowa	18.4	-1.3	Keokuk	73	24	Decorah	-31	27	1.51	+.50	Le Clair LD	3.82	Pocahontas	.22
Kansas	30.3	.0	Sedan	80	24	Oberlin	-27	26	.27	-.39	Mound City	1.16	Elkhart	.00
Kentucky	45.4	+9.5	Ashland Dam	80	26	2 stations	12	†7	12.82	+8.30	Hodgenville Nat'l.Pk.	17.76	Jenkins Water Works	5.67
Louisiana	62.5	+10.9	2 stations	86	†24	Cotton Valley	25	7	5.87	+.85	Minden	13.50	Buras	.43
Maryland-Del.	45.3	+11.8	Western Port	[illegible]	25	4 stations	10	20	3.37	-1.25	Friendsville, Md.	7.29	Easton Police Bks.Md.	1.23
Michigan	23.9	+3.7	Ann Arbor, U. of Mich.	72	25	Kenton U.S. Forest	-42	30	3.70	+1.87	Hillsdale	6.04	Rock	1.60
Minnesota	3.5	-6.1	New London	47	[illegible]	Meadowlands, 2NE	-51	30	1.50	+.74	Duluth WB Airport	3.12	Tyler	.08
Mississippi	59.4	+12.0	Duck Hill	89	25	Pontotoc	20	7	8.25	+3.00	Lake Cormorant	15.04	Pascagoula Ingl.Syd.	.74
Missouri	35.7	+4.8	Hamdenton	85	24	Tarkio	-15	31	5.52	+3.21	Cape Girardeau	15.94	Tarkio	.62
Montana	-.4	-19.2	Yellowtail Dam	62	21	2 stations	-57	†25	1.16	+.40	Summit	9.35	Ennis	.05
Nebraska	18.5	-4.9	Ravenna	78	21	Oshkosh	-34	[illegible]	.44	-.10	Tekanah	1.25	2 stations	.06
Nevada	28.0	-2.7	Pahrump, 2N	77	23	Mala Vista	-23	5	1.21	+.15	Jarbridge	6.96	5 stations	T
New England	28.7	+6.2	Waterbury, Conn.	73	26	Fort Kent, 1SE, Me.	-31	21	4.03	+.60	Somerset, Vt.	7.44	Presque Isle, Me.	1.49
New Jersey	40.7	+9.8	3 stations	76	26	2 stations	5	9	2.46	-1.15	Sussex	3.80	Glassboro	1.13
New Mexico	37.2	+3.3	Jal	84	22	Selsor Ranch	-32	4	.28	-.30	Jemez Springs	4.00	62 Stations	.00
New York	31.5	+8.4	Dansville AP	75	25	2 stations	-20	[illegible]	3.90	+1.00	Hinchley	8.99	Watertown AP	1.70
North Carolina	53.0	+11.2	3 stations	82	†25	do	13	†7	2.73	-1.02	Hyatt Creek	11.80	Bluff	.84
North Dakota	-10.5	-17.2	Medora	51	21	Elbowoods	-51	26	1.04	+.55	Jamestown CAA AP	2.98	Grenora	.20
Ohio	39.2	+10.1	3 stations	79	25	Wauseon	-6	8	8.38	+5.46	West Manchester	11.64	Put-in-BayStone Lab.	4.67
Oklahoma	39.3	+1.3	2 stations	87	†25	Kenton	-12	4	1.93	+.43	Kiamichi Tower	15.02	3 stations	.00
Oregon	23.7	-8.0	Seaside	63	19	Ukiah	-41	31	6.99	+3.11	Valsetz	30.79	Rome CAA AP	.57
Pennsylvania	38.1	+9.6	Johnstown 1	[illegible]	26	Coudersport	-2	[illegible]	4.14	+.97	Allens Mills	8.29	Neshaminy	.93
South Carolina	56.2	+10.0	Beaufort	86	16	Union	18	8	2.18	-1.30	Sassafras Mountain	6.40	Givhans Ferry Sts.Pk	.34
South Dakota	4.0	-13.1	Long Valley	63	21	Ralph	-41	[illegible]	.54	-.01	Timber Lake	2.79	Long Valley	.06
Tennessee	50.0	+10.7	2 stations	80	25	5 stations	17	†5	13.04	+8.03	Petersburg	20.95	2 stations	4.72
Texas	52.5	+4.3	Rio Grande City	96	26	Dalhart Exp. Sta.	-8	[illegible]	1.49	-.32	Chambers Hill GS	14.78	20 stations	.00
Utah	22.6	-2.2	Bluff	69	23	Woodruff	-38	[illegible]	1.73	+.56	Alta	13.46	2 stations	.02
Virginia	47.9	+11.2	Ashland	82	26	Big Meadows	9	20	2.68	-.59	Olinger	10.34	Orange, 1SW	1.31
Washington	15.5	-15.8	7 stations	55	†20	Newport	-41	30	5.49	+.74	Wind River	25.65	Moxee City, 10E	.61
West Virginia	45.2	+12.3	3 stations	[illegible]	26	Canaan Valley	8	20	6.42	+2.79	Cabwaylingo State Frm.	10.62	Omps	1.17
Wisconsin	13.7	-.6	Kenosha	64	25	Mellen Power Co. Dam	-49	30	2.37	+1.11	Burlington Sewage Pl.	4.13	Beaver Dam	.70
Wyoming	15.9	-3.1	Yoder	65	†20	Bondurant	-43	5	1.12	+.24	Bondurant	9.80	2 Stations	.02
Hawaii	69.3	+0.1	3 Stations	89	†11	Haleakala R.S.	34	3	10.10	+3.13	Kukui, Main	52.00	Puako, Haw.	.65
Puerto Rico	71.2	-1.5	Juncos	93	3	Barranquitas (2)	50	†17	3.93	+.86	Rio Blanco (1800 ft.)	19.00	Santa Rita (2)	.00

† Other dates also

CLIMATOLOGICAL DATA

WEATHER BUREAU STATIONS

Table 2 — JANUARY 1950

State and station	Elevation of barometer above sea level	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity[3]	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F	°F.	°F		°F.				°F	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0– 3	4– 7	8– 10	0–10	%
ALABAMA																																
Anniston	618	1001.0	1023.7	66	49	57.7	-----	80	25	28	8	0	2	52	83	4.50	-.65	0.99	15	2	0.0	0	9.1	ENE	--	--	--	2	6	23	8.9	--
Birmingham [2]	700	1000.4	1023.2	67	51	58.9	+16.0	78	24	30	8	0	2	53	82	4.51	-1.01	2.08	16	1	0	0	10.3	S	33	NW	26	1	2	28	8.9	17
Mobile [4]	57	1014.9	1022.9	72	58	65.2	+13.7	78	19	38	7	0	0	60	86	2.87	-1.98	1.11	8	3	0	0	13.1	SE	31	SE	15	0	18	13	7.2	39
Montgomery [4]	218	1016.3	1023.7	71	54	62.8	+14.6	81	30	35	8	0	0	55	81	2.23	-2.97	1.39	9	1	0	0	7.9	S	21	SW	10	0	9	22	8.1	31
ARIZONA																																
Flagstaff [2]	7018	786.7	------	40	14	26.7	-.7	61	20	-6	4	0	31	17	68	1.07	-----	.54	9	0	17.7	8	8.0	S	--	--	--	7	7	17	6.6	--
Phoenix [4]	1107	977.7	1017.6	64	38	51.3	+.1	84	20	23	4	0	6	32	54	.32	-.48	.24	3	0	0	0	2.7	E	26	SW	24	13	7	11	4.9	73
Tucson [2]	2555	927.5	1016.9	64	37	50.4	+1.3	84	20	17	6	0	9	26	44	.30	-.60	.18	3	0	0	0	6.3	SSE	33	SW	24	11	7	13	5.3	78
Yuma [2]	213	1012.5	1017.6	66	40	52.7	-----	83	23	30	6	0	6	27	40	.05	-----	.04	2	1	0	0	5.3	NNE	36	W	24	17	5	9	3.8	89
ARKANSAS																																
Fort Smith [2]	463	1003.1	1020.1	55	34	44.3	+4.8	80	25	15	4	0	16	38	80	5.75	+3.21	1.80	14	5	.5	1	9.9	NE	42	SW	25	4	3	24	8.0	34
Little Rock [2]	265	1007.5	1020.6	59	41	49.7	+8.3	83	25	23	4	0	11	44	84	12.53	+7.80	2.83	16	7	2.3	1	9.5	S	44	S	4	3	2	26	8.5	19
CALIFORNIA																																
Eureka [1]	60	1016.6	------	49	38	43.3	-3.6	64	20	26	3	0	9	--	--	13.79	+6.68	3.97	24	1	2.8	2	9.2	---	35	W	13	5	2	24	7.9	25
Fresno [2]	327	1008.8	1020.9	52	33	42.7	-2.8	71	21	21	5	0	17	38	83	3.01	+1.28	.75	11	0	T	T	6.3	NW	24	W	24	7	5	19	6.7	63
Los Angeles [4]	104	1015.6	1019.4	59	42	50.4	-4.2	73	19	34	13	0	0	39	73	2.57	-.53	1.04	6	0	0	0	5.1	E	30	NW	24	13	7	11	5.0	70
Red Bluff [2]	353	1006.1	1019.3	46	31	38.3	-7.5	58	23	21	6	0	23	31	76	5.48	+.72	1.29	16	0	13.6	10	9.1	NW	59	SE	13	8	3	20	6.9	40
Sacramento [4]	25	1018.0	1020.3	51	37	43.5	-2.3	67	19	24	6	0	12	36	78	4.41	+.69	.96	15	1	T	0	12.7	SE	26	S	14	11	4	16	6.4	46
San Diego [2]	28	1016.6	1019.7	60	44	52.1	-1.9	73	22	35	6	0	0	42	70	3.31	+1.25	1.99	9	0	T	T	6.1	WNW	28	SW	8	12	12	7	4.8	71
San Francisco [4]	18	1019.6	1020.5	52	42	46.9	-3.0	65	21	35	4	0	0	38	76	7.40	+2.86	2.42	17	0	0	0	11.8	WNW	35	SW	14	8	6	17	6.3	52
COLORADO																																
Denver [4]	5292	830.3	1012.6	45	18	31.4	+1.6	69	21	-8	4	0	26	9	48	.69	+.29	.47	6	0	10.2	5	7.7	S	35	S	18	9	10	12	5.7	64
Grand Junction [2]	4602	858.1	1019.9	34	13	23.1	-.9	48	23	-2	6	0	31	16	77	1.40	+.80	.39	11	0	19.5	9	5.0	E	54	S	2	5	11	15	7.1	57
Pueblo [2]	4690	852.0	1013.7	52	15	33.2	+4.5	75	20	-14	4	0	29	5	38	.02	-.29	.02	1	0	.2	T	9.9	W	80	W	17	12	6	13	5.3	78
CONNECTICUT																																
Hartford [2]	159	1017.3	1023.5	42	27	34.5	+9.0	65	26	8	8	0	24	26	75	3.87	-.07	1.04	17	0	3.6	2	8.7	N	38	W	14	4	2	25	8.4	35
New Haven [2]	107	1019.3	1023.4	43	29	36.0	+8.6	60	14	9	9	0	19	--	--	3.31	-.36	.47	21	0	1.7	1	7.3	--	34	NW	14	3	3	25	8.4	32
DISTRICT OF COLUMBIA																																
Washington [4]	112	1020.0	1024.1	57	40	48.4	+15.0	80	26	22	20	0	8	35	65	1.74	-1.81	.48	14	0	.2	T	7.9	SSW	34	W	7	3	5	23	8.2	44
FLORIDA																																
Apalachicola	35	1023.0	1024.2	71	61	65.8	+12.7	76	27	43	8	0	0	--	--	.14	-3.51	.13	2	0	0	0	8.0	SE	27	E	8	14	15	2	3.7	73
Jacksonville [4]	43	1024.7	1025.7	76	60	68.0	+12.6	82	16	47	9	0	0	58	80	.01	-2.79	.01	1	0	0	0	7.2	S	21	N	7	8	17	6	5.1	69
Key West [4]	21	1022.0	1022.4	79	71	74.8	+5.3	81	31	64	2	0	0	65	73	.36	-1.60	.13	7	0	0	0	12.5	E	28	NE	8	12	14	5	4.7	66
Miami [4]	25	1023.0	1023.8	76	70	73.1	+5.2	78	7	65	8	0	0	62	69	.54	-1.73	.48	6	0	0	0	17.6	ESE	42	NE	8	17	13	1	3.8	79
Pensacola [4]	56	1021.3	1023.5	73	61	66.5	+14.0	78	19	41	7	0	0	61	--	.61	-3.38	.19	8	0	0	0	7.8	SSE	22	NE	7	2	12	17	7.1	62
Tampa [2]	35	1023.4	1024.6	80	59	69.6	+9.2	84	26	53	9	0	0	59	74	T	-2.69	T	0	0	0	0	7.0	E	25	E	8	19	12	0	3.4	91
GEORGIA																																
Atlanta [2]	1173	982.4	1024.7	64	47	55.5	+13.0	77	26	28	8	0	1	49	83	2.06	-2.97	1.02	14	1	0	0	10.2	SSE	34	NW	6	1	4	26	8.6	24
Augusta [2]	182	1019.0	1025.5	68	49	58.6	+11.6	80	25	33	8	0	0	49	76	1.42	-2.43	.62	8	0	0	0	8.0	SE	--	--	--	5	8	18	7.4	--
Savannah [2]	65	1023.7	1026.2	72	53	62.6	+12.8	81	16	39	8	0	0	55	80	.48	-2.30	.47	3	1	0	0	11.5	SSE	28	NW	7	8	12	11	5.7	76
Macon [2]	370	1011.9	1024.9	71	50	60.5	-----	82	25	29	8	0	1	52	79	.97	-----	.38	7	0	0	0	9.2	SSE	30	S	6	1	12	18	7.9	47
IDAHO																																
Boise [2]	2739	916.7	1015.5	33	18	25.4	-2.5	54	20	-17	31	0	29	17	71	2.53	+0.80	.75	19	0	19.7	11	11.2	ESE	42	SE	13	0	5	26	8.7	19
Lewiston	1436	962.4	1016.6	25	8	16.5	-----	53	22	-22	31	0	30	9	71	1.80	-----	.60	19	0	22.9	14	6.7	W	--	--	--	0	6	25	8.8	--
Pocatello [2]	4478	858.1	1015.8	30	14	22.4	+0.1	50	20	-5	5	0	28	14	71	2.54	+1.20	.95	17	1	28.1	15	14.2	S	57	SW	13	1	3	27	8.9	24
ILLINOIS																																
Cairo	357	1008.5	------	53	37	44.8	+9.9	75	25	19	5	0	15	--	--	14.95	+11.19	3.51	20	4	4.2	2	12.5	---	35	SW	15	4	1	26	8.3	30
Chicago [2]	673	996.6	1020.2	39	20	29.4	+7.1	67	25	1	19	0	24	22	75	3.77	+1.87	1.38	15	1	3.0	2	11.8	SSW	50	W	14	4	4	23	7.9	39
Moline [2]	606	997.6	1021.2	36	16	25.9	+5.7	65	24	1	5	0	27	18	71	3.56	+2.14	1.27	12	3	1.7	1	11.8	WNW	52	SW	13	5	7	19	7.3	36
Peoria [2]	609	997.3	1020.5	39	19	29.2	+5.1	68	24	3	5	0	25	23	78	4.09	+2.31	1.39	12	3	2.1	1	12.7	S	54	S	25	6	3	22	7.6	38
Springfield [4]	636	997.6	1020.9	42	23	32.4	+7.7	71	24	8	4	0	24	26	79	5.22	+3.12	1.59	13	1	.7	1	13.6	S	44	W	13	5	4	22	7.7	38
INDIANA																																
Evansville [2]	431	1006.1	1022.1	51	34	42.5	+10.9	74	25	18	4	0	20	37	82	13.50	+9.76	2.99	20	5	2.1	1	11.5	S	38	SW	26	4	1	26	8.5	28
Fort Wayne [2]	857	988.8	1021.0	42	24	33.3	+7.9	69	25	7	8	0	22	28	81	9.72	+7.39	2.64	17	3	6.4	3	10.5	SSW	42	S	13	3	4	24	8.1	39
Indianapolis [2]	823	990.9	1021.3	46	28	37.4	+10.1	71	25	15	4	0	23	32	82	12.69	+9.74	3.74	20	5	1.3	1	12.7	SSW	90	W	25	7	1	23	7.5	34
Terre Haute [2]	575	1000.0	1021.6	47	28	37.5	+8.8	71	25	13	4	0	22	32	81	10.66	+7.96	3.93	17	3	1.3	1	12.8	S	50	NW	25	6	2	23	7.8	39
IOWA																																
Burlington [2]	702	993.9	1021.1	37	16	26.5	+4.4	68	24	0	4	0	28	20	82	2.76	+1.05	1.09	12	0	1.6	1	12.7	SSE	48	NW	10	5	8	18	7.3	46
Charles City	1015	981.7	1020.7	25	3	13.7	0	43	2	-19	26	0	30	--	--	1.37	+.32	.53	9	0	6.4	5	7.4	---	29	SW	8	12	3	16	5.8	48
Des Moines [4]	860	987.8	1020.7	32	9	20.4	+.3	51	2	-9	31	0	29	12	75	1.23	+.16	.68	6	1	7.2	5	10.9	NW	45	NW	10	8	4	19	6.7	56
Dubuque	699	993.6	1020.3	32	11	21.6	+2.5	51	2	-8	19	0	29	14	79	1.76	+.46	.83	8	1	4.9	2	5.9	---	24	NW	17	8	5	18	6.9	51
Sioux City [2]	1138	977.3	1020.9	25	0	12.4	-3.9	45	22	-23	26	0	31	4	73	.75	+.01	.50	8	0	8.7	6	11.1	NW	42	N	28	9	6	16	6.4	63
KANSAS																																
Concordia	1392	967.8	1019.6	37	13	25.2	-1.2	63	22	-7	26	0	29	12	67	.10	-.51	.05	2	0	2.5	1	9.1	---	32	SW	8	11	8	12	5.5	57
Dodge City [2]	2509	926.9	1017.5	44	16	29.6	+.6	72	28	-6	4	0	29	14	60	.03	-.38	.02	2	0	T	T	13.2	S	56	SW	14	9	8	14	5.8	83
Topeka [2]	987	986.8	1020.2	40	17	28.5	----	65	2	-1	26	0	27	20	75	.84	----	.30	8	1	2.5	1	11.1	SSW	36	S	28	10	3	18	6.5	60
Wichita [2]	1358	968.5	1018.8	41	20	30.4	-.9	70	24	1	4	0	27	20	69	.52	-.26	.27	10	0	.5	T	12.2	S	42	S	14	10	4	17	6.5	59
KENTUCKY																																
Lexington [2]	989	987.8	1022.7	52	35	43.7	+10.8	76	25	18	20	0	15	38	82	16.65	+12.47	2.44	21	2	T	T	15.4	S	--	--	--	3	3	25	8.5	--
Louisville [2]	525	1004.7	1022.1	53	36	44.6	+11.2	77	25	21	20	0	18	37	78	11.38	+7.38	1.36	20	4	T	T	10.6	SSE	50	S	3	3	2	26	8.6	33
LOUISIANA																																
New Orleans	53	1019.6	------	75	60	67.2	+13.0	81	26	40	7	0	0	--	--	2.14	-2.20	1.17	9	2	0	0	7.5	---	18	S	5	0	14	17	7.4	38
New Orleans AP [2]	30	1020.0	1021.8	74	60	67.1	-----	80	24	41	7	0	0	61	85	3.93	-----	1.18	13	3	0	0	11.6	SSE	27	NW	6	3	9	19	7.5	--
Shreveport [2]	181	1010.5	1019.8	64	48	56.2	+8.6	85	25	28	7	0	4	51	86	5.69	+1.76	1.17	19	4	T	T	11.9	S	38	S	25	0	2	29	9.4	17
MAINE																																
Caribou [2]	628	996.6	1021.4	24	4	14.0	+7.1	51	26	-21	21	0	30	2	61	2.94	+.54	.93	21	1	22.1	9	15.9	SSE	76	NW	30	4	6	21	7.6	--
Eastport	75	1019.0	1022.0	36	17	26.7	+6.3	55	5	-9	8	0	28	--	--	4.93	+1.01	.92	21	0	24.3	6	12.9	---	40	S	18	5	4	22	8.0	31
Portland [2]	103	1018.3	1022.3	37	17	26.9	+6.8	64	4	8	8	0	27	20	77	4.43	+.46	1.24	17	0	17.4	6	8.2	N	48	W	11	5	5	21	7.6	39
MARYLAND																																
Baltimore [4]	123	1016.6	1024.2	55	39	46.9	+13.1	79	26	23	20	0	9	34	69	2.13	-1.37	.99	17	0	.5	T	9.0	SW	44	W	7	3	8	20	7.5	31
MASSACHUSETTS																																
Boston [2]	124	1018.3	1023.0	45	28	36.2	+8.3	72	26	6	8	0	22	25	68	3.86	+.25	1.00	16	0	7.9	4	12.0	SW	52	W	11	4	4	23	8.0	40
Nantucket [2]	12	1022.7	1022.9	46	32	38.9	+7.6	57	5	11	8-9	0	16	33	79	3.18	-.59	.65	15	0	.2	T	14.3	SW	34	S	18	1	8	22	8.4	23

See footnotes at end of table.

CLIMATOLOGICAL DATA
WEATHER BUREAU STATIONS

Table 2—Continued

JANUARY 1950

State and station	Elevation of barometer above sea level[1]	Pressure		Temperature										Precipitation						Wind					No. of days (sunrise to sunset)				
											No. of days						No. of days		Snow, Sleet, Hail			Fastest mile							
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F or above	Min. 32° F. or below	Average dew point	Average relative humidity[6]	Total	Departure from normal	Greatest in 24 hours	01 inch or more	With thunderstorms	Total	Max. depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F	%	In.	In.	In.			In.	In.	M p. h.		M p. h.			0– 3	4– 7	8– 10	0–10	%
MICHIGAN																															
Alpena	609	995.6	------	33	16	24.3	+5.2	53	10	-1	19	0	27	--	--	2.82	+.93	.99	20	1	11.6	6	12.0	---	47	W	18	0	7	24	8.9	23
Detroit [2]	730	993.2	1020.8	41	24	32.6	+8.5	67	25	4	8	0	25	26	77	4.38	+2.31	.84	15	0	9.5	4	12.0	S	52	NW	10	3	2	26	8.6	22
Escanaba	612	995.3	------	25	5	15.2	-.2	41	3	-19	30	0	30	--	--	2.82	+1.33	.91	17	1	27.2	19	10.5	---	33	NW	10	8	7	16	6.4	53
Grand Rapids [4]	707	993.6	1019.9	39	22	30.1	+5.6	66	25	5	18	0	25	23	80	3.77	+1.42	.95	16	0	8.5	2	14.1	S	73	SW	14	1	3	27	8.9	24
Lansing [2]	878	987.1	1020.5	39	21	29.8	+7.9	65	25	2	19	0	26	24	80	3.61	+1.79	1.11	14	4	3.9	2	17.4	W	52	SW	18	3	4	24	8.4	24
Marquette	734	989.5	------	25	7	15.9	-.4	41	2	-14	30	0	30	--	--	3.51	+1.18	1.01	19	0	43.7	27	9.2	---	36	NW	17	4	7	20	7.7	44
Sault Ste. Marie [2]	614	990.2	1018.5	26	5	15.4	+3.3	41	10	-14	20	0	30	10	81	4.37	+2.35	1.37	26	1	39.1	20	10.4	E	47	NW	11	2	8	21	8.2	34
MINNESOTA																															
Duluth [4]	1133	964.1	1019.4	14	-7	3.6	-4.3	35	1	-30	18	0	31	-6	72	2.19	+1.22	.56	17	0	23.8	22	19.4	WNW	49	NW	17	7	8	16	8.7	46
Minn.-St. Paul [2]	919	983.4	1020.2	17	-4	6.8	-5.9	39	1	-24	26	0	31	0	72	1.27	+.41	.51	13	0	17.0	14	10.9	NW	45	W	13	11	2	18	6.4	41
MISSISSIPPI																															
Meridian [4]	375	1008.8	1022.5	70	53	61.4	+14.4	83	26	30	8	0	2	55	83	7.06	+1.74	4.19	12	4	0	0	8.8	SSE	--	--	--	0	9	22	8.8	--
Vicksburg [4]	247	1012.5	1021.3	67	51	58.7	+10.5	80	30	28	7	0	1	53	--	8.11	+2.74	3.06	14	5	0	0	9.9	SSE	27	SW	24	0	4	27	8.9	20
MISSOURI																															
Columbia [4]	784	990.5	1020.2	46	24	34.8	+3.9	78	24	4	5	0	24	25	80	2.05	+.13	.66	10	0	1.4	1	8.6	SSE	31	S	25	6	6	19	7.3	41
Kansas City [2]	963	991.9	1020.3	41	20	30.3	+2.1	75	24	0	4	0	25	21	70	.69	-.55	.40	8	0	1.4	1	10.4	SSW	38	S	8	7	7	17	6.9	43
St. Joseph [2]	967	983.7	1020.3	37	15	26.0	+.5	63	2	-4	26	0	27	18	76	1.02	-.26	.39	9	1	2.9	1	12.3	SSE	34	S	15	10	4	17	6.4	42
St. Louis [4]	568	999.3	1020.4	48	29	38.4	+7.3	75	24	10	4	0	22	30	77	8.12	+5.78	3.88	14	2	3.0	2	13.5	S	59	SW	24	5	6	20	7.5	51
Springfield [2]	1324	970.9	1019.7	49	26	37.2	+4.9	76	24	5	4	0	24	30	80	6.77	+4.43	3.91	12	3	2.9	2	12.4	SSE	42	S	25	6	5	20	7.3	37
MONTANA																															
Billings [2]	3570	886.2	1017.5	15	-5	5.1	-17.3	55	21	-21	25	0	30	-4	70	.65	-----	.20	10	0	8.1	5	11.6	NNE	35	SW	7	1	9	21	8.2	43
Butte	5533	819.5	1014.7	22	-4	9.1	-5.3	50	20	-34	31	0	29	-1	67	.66	+.26	.13	17	0	13.8	6	10.1	SW	--	--	--	2	6	23	8.5	--
Glasgow	2086	942.1	1023.6	-3	-26	-14.2	-23.2	31	21	-50	26	0	31	--	--	1.33	+.82	.34	15	0	15.5	20	----	---	--	--	--	4	12	15	7.1	--
Great Falls [2]	3657	883.8	1019.2	6	-14	-3.8	-27.7	49	21	-33	3	0	31	-11	71	.91	+.30	.20	15	0	13.2	6	11.5	SW	54	SW	5	3	7	21	7.8	54
Havre	2507	926.5	1023.7	-2	-21	-11.6	-24.5	42	21	-39	25	0	31	--	--	.92	+.19	.22	13	0	10.1	16	7.2	W	30	SW	5	5	10	16	6.8	33
Helena [2]	4124	867.3	1018.9	13	-11	.6	-18.1	57	20	-31	29	0	29	-8	68	1.05	+.49	.29	17	0	12.9	5	5.5	NW	59	SE	10	3	5	23	8.3	48
Kalispell	2973	906.5	1016.5	12	-4	4.0	-16.4	47	21	-28	31	0	29	-2	--	1.94	+.37	.55	19	0	24.3	18	12.0	NNE	--	--	--	1	4	26	8.8	--
Miles City [2]	2371	930.9	1021.2	5	-14	-4.5	----	43	21	-29	15	0	31	-13	--	.29	----	.12	10	0	3.3	5	7.8	NNE	--	--	--	3	12	16	7.4	--
Missoula [2]	3263	895.7	1015.2	20	2	10.7	-7.9	43	22	-24	31	0	30	6	78	1.75	+.90	.40	21	0	19.5	13	5.7	SE	48	N	14	1	4	26	8.9	22
NEBRASKA																															
Lincoln [4]	1189	975.3	1020.2	32	8	20.0	-2.8	59	22	-15	26	0	31	10	72	.83	+.19	.35	8	0	8.7	4	10.1	S	37	NW	9	8	3	20	6.6	54
Norfolk [2]	1551	961.4	1020.0	25	1	12.6	-8.0	50	21	-24	26	0	31	--	--	.64	-.02	.40	8	0	8.5	6	----	---	--	--	--	10	3	18	6.3	--
North Platte [2]	2821	914.7	1018.3	34	3	18.7	-4.2	71	21	-25	26	0	31	5	62	.31	-.08	.29	2	0	3.5	3	8.6	SE	37	NW	13	6	12	13	6.2	49
Omaha [2]	1105	978.7	1020.6	30	7	18.4	-2.5	48	22	-18	31	0	31	10	72	.95	+.25	.44	7	0	10.0	6	12.9	SSE	42	NW	15	9	6	16	6.2	51
Valentine	2598	922.5	1019.6	26	-1	12.5	-6.4	59	21	-29	26	0	31	4	70	.34	-.14	.16	5	0	6.5	4	8.3	---	27	N	14	6	6	19	6.9	72
NEVADA																															
Ely [2]	6262	804.6	------	33	7	20.2	-2.7	57	21	-15	15	0	31	--	--	.45	-.55	.19	8	0	6.4	6	12.1	---	52	SE	14	5	9	17	6.9	52
Reno [2]	4400	859.1	1015.7	42	16	29.3	-1.6	65	20	-8	15	0	28	19	64	1.54	.00	.40	11	0	13.7	6	8.4	S	54	S	13	10	6	15	6.2	52
Winnemucca [2]	4339	864.2	1015.7	38	15	26.6	-2.0	59	21	-14	3	0	26	17	63	1.04	+.01	.31	14	0	16.5	5	10.5	---	52	W	14	3	6	22	8.0	42
NEW HAMPSHIRE																															
Concord [2]	289	1011.5	1022.8	37	18	27.5	+8.5	68	4	-8	9	0	27	19	73	4.29	+1.29	1.47	16	0	14.8	4	5.8	NNW	36	W	11	3	7	21	7.8	30
Mt. Washington	6274	801.9	1023.0	22	2	12.3	+6.3	44	26	-34	8	0	30	--	--	4.90	-1.03	.95	20	0	28.8	10	46.6	---	--	--	--	3	4	24	8.4	19
NEW JERSEY																															
Atlantic City	52	1021.7	1023.4	51	37	44.3	+11.8	65	14	20	20	0	10	--	--	2.48	-1.01	.95	14	0	.5	1	16.1	---	43	W	14	1	7	23	8.2	52
Newark [2]	30	1021.7	1023.5	48	33	40.3	+10.5	74	26	15	8	0	16	31	70	2.42	-1.38	.50	14	0	.5	T	10.6	NE	42	WSW	14	4	2	25	8.3	--
Trenton	190	1016.3	1023.1	50	34	42.3	+11.8	72	26	18	8	0	15	--	--	1.83	-1.48	.58	14	0	T	T	9.2	---	35	NW	7	1	5	25	8.5	17
NEW MEXICO																															
Albuquerque [2]	5314	848.0	1016.1	51	24	37.5	+3.4	67	23	7	4	0	25	16	45	.02	-.38	.02	1	0	T	T	6.5	S	50	NW	9	11	9	11	5.2	68
Roswell [2]	3614	890.6	1015.3	63	28	45.1	+5.9	79	23	12	7	0	21	19	40	T	-.53	T	0	0	0	0	7.3	S	46	SW	3	12	8	11	5.1	84
NEW YORK																															
Albany [2]	97	1019.0	1022.6	39	23	31.0	+10.9	64	5	-3	8	0	25	24	76	3.63	+1.23	.96	18	0	8.6	3	11.0	S	52	NW	11	2	9	20	7.9	32
Binghamton [4]	871	990.9	1022.5	44	28	36.3	+12.2	70	25	5	8	0	19	27	74	3.38	+.93	1.16	21	0	3.3	1	7.0	WSW	33	SW	14	1	7	23	8.5	36
Buffalo [2]	768	991.9	1020.7	44	26	35.0	+11.1	72	25	3	8	0	23	27	76	5.01	+1.71	.83	21	0	14.8	5	16.3	S	91	SW	14	1	4	26	8.9	18
Canton	448	1003.7	1020.3	37	15	25.5	+8.9	64	26	-14	8	0	28	--	--	4.40	+1.90	1.17	18	0	16.8	7	10.8	---	61	W	14	2	5	24	8.3	28
New York [4]	314	1011.5	1023.6	50	35	42.3	+11.4	71	26	16	8	0	15	31	70	2.42	-1.24	.50	12	0	T	T	12.2	NE	70	W	14	4	4	23	8.2	27
Oswego	335	1008.1	1021.3	41	24	32.7	+9.1	69	25	-1	8	0	25	--	--	3.98	+1.07	.61	20	0	14.8	5	12.6	---	40	W	14	1	1	29	9.0	15
Rochester [2]	523	1001.4	1021.0	42	25	33.3	+10.3	74	25	0	8	0	24	27	79	3.71	+.82	.75	18	0	14.2	5	13.1	WSW	73	W	14	0	6	25	8.7	34
Syracuse [2]	596	999.3	1021.8	43	24	33.2	+10.4	70	25	-2	8	0	24	25	73	4.20	+1.48	.79	24	0	20.2	8	12.0	E	56	SW	14	1	6	24	8.7	20
NORTH CAROLINA																															
Asheville	2253	949.9	1024.7	61	42	51.6	+16.2	73	26	24	8	0	5	44	33	3.14	+.04	1.55	14	1	0	0	9.9	SSW	29	NW	7	2	6	23	8.0	43
Charlotte [4]	779	997.6	1025.8	62	45	53.6	+12.4	76	25	30	21	0	2	45	78	2.45	-1.55	.80	12	0	T	T	8.7	S	26	SW	10	3	6	22	8.0	40
Greensboro [2]	886	993.2	1025.9	59	40	49.7	+11.8	75	25	21	8	0	5	41	76	1.81	-1.76	.56	10	0	T	T	11.6	SW	32	SW	10	2	7	22	8.1	32
Hatteras	11	1025.1	1025.7	65	52	58.2	+11.1	74	25	38	9	0	0	53	85	1.57	-2.85	.51	12	2	0	0	12.6	S	31	N	20	7	8	16	7.1	49
Raleigh [4]	376	1009.5	1025.4	63	44	53.6	+12.5	78	25	27	21	0	4	43	75	2.26	-1.40	.86	8	0	T	T	7.7	SW	31	SW	10	5	13	13	6.6	41
Wilmington	72	1025.1	1026.3	68	50	58.8	+12.3	80	16	32	21	0	1	51	--	1.98	-1.31	.82	7	1	0	0	9.2	SSW	27	NW	7	7	10	14	6.4	61
NORTH DAKOTA																															
Bismarck [2]	1677	957.0	1023.1	0	-21	-10.2	-16.5	25	21	-44	18	0	31	-18	69	1.00	+.55	.27	10	0	16.9	17	10.6	NW	45	NW	24	8	6	17	6.4	55
Devils Lake	1478	964.1	------	-6	-21	-13.4	-15.2	19	11	-36	26	0	31	---	--	1.00	+.53	.39	12	0	15.8	25	9.6	---	26	NE	23	8	5	18	6.5	63
Fargo [2]	940	984.4	1022.2	2	-16	-7.1	-10.9	27	1	-32	26	0	31	-15	65	1.36	+.69	.42	14	0	14.9	18	14.7	NNW	41	S	11	6	7	18	7.0	41
Williston	1878	949.2	------	-3	-21	-12.2	-18.6	30	21	-37	26	0	31	---	--	1.21	+.67	.33	14	0	14.2	15	6.1	---	23	E	23	7	4	20	7.2	52
OHIO																															
Cincinnati [4] [5]	627	998.6	1022.0	52	35	43.6	+11.3	75	25	21	19	0	16	35	80	10.65	+7.17	1.82	19	2	1.2	1	12.9	SSW	23	NW	15	3	5	23	8.5	25
Cleveland [2]	762	992.9	1021.2	46	28	36.8	+12.1	73	25	9	19	0	23	30	78	7.01	+4.50	1.11	21	0	3.7	2	14.3	S	59	SW	14	4	2	25	8.4	23
Columbus [4]	822	990.9	1021.9	49	32	40.4	+11.8	74	25	13	19	0	21	34	79	6.86	+3.80	1.70	20	3	.1	T	11.4	S	40	S	4	4	6	21	8.1	34
Dayton [2]	1003	984.4	1021.8	47	30	38.4	+10.7	71	25	14	19	0	23	32	81	9.86	+6.63	1.60	21	2	.7	1	13.0	S	59	W	15	5	2	24	8.2	35
Sandusky	629	998.0	------	45	29	37.2	+10.9	73	25	10	19	0	23	--	--	6.54	+4.28	1.33	17	1	4.7	3	10.7	---	38	SW	14	5	4	22	7.8	32
Toledo [2]	628	997.0	1020.9	43	25	33.9	+9.4	71	25	0	8	0	25	28	81	6.30	+4.14	1.16	17	2	9.0	5	13.9	SSW	56	SW	14	4	2	25	8.2	27
OKLAHOMA																															
Oklahoma City [4]	1304	971.2	1019.2	49	27	38.0	+1.6	81	24	6	4	0	0	29	74	1.76	+.57	.86	7	0	1.4	1	16.2	S	27	S	24	5	6	20	7.3	49
Tulsa [2]	674	994.2	1019.4	50	27	38.6	+3.3	79	24	7	4	0	22	31	77	1.86	+.18	.94	12	2	3.1	2	11.0	S	54	SW	24	6	3	22	7.5	36
OREGON																															
Baker [4]	3471	890.3	1015.1	27	9	18.1	-6.9	50	22	-20	31	0	28	11	--	1.20	-.19	.21	22	0	24.4	8	6.6	SE	29	S	13	1	6	24	8.6	28
Burns	4162	867.3	1014.2	29	10	19.7	-4.9	50	20	-20	31	0	29	13	72	2.83	+1.28	.89	18	0	31.9	15	----	---	--	--	--	1	9	21	8.5	--
Eugene [2]	433	1001.7	1015.5	38	25	31.2	----	53	21	-3	31	0	25	29	92	12.92	----	2.29	28	0	36.1	8	9.8	S	--	--	--	0	4	27	9.2	--
Meacham [2]	4056	868.9	1013.7	23	7	14.9	----	44	20	-15	30	0	29	11	81	3.72	----	.59	26	0	41.8	37	6.9	ESE	--	--	--	0	4	27	9.2	--
Medford [2]	1329	968.2	1017.4	40	26	33.0	-4.9	52	21	1	31	0	26	28	84	5.96	+3.65	1.42	19	0	20.1	5	7.4	N	--	--	--	1	4	26	9.0	--
Portland [4]	154	1009.1	1014.8	35	24	29.4	-10.0	54	21	8	31	0	22	22	81	11.68	+5.08	1.76	28	0	32.9	8	9.7	SE	40	S	10	2	2	27	9.0	11
Roseburg	510	997.6	1016.6	41	30	35.6	-5.6	59	21	16	31	0	21	--	--	11.11	+5.80	1.80	27	1	28.0	5	4.6	S	28	SW	10	0	0	31	9.6	11

. See footnotes at end of table.

CLIMATOLOGICAL DATA

WEATHER BUREAU STATIONS

Table 2—Continued

JANUARY 1950

State and station	Elevation of barometer above sea level[1]	Pressure		Temperature											Average relative humidity[6]	Precipitation						Wind				No. of days (sunrise to sunset)			Sky cover[7], tenths (sunrise to sunset)	Possible sunshine
				Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point		Total	Departure from normal	Greatest in 24 hours	No. of days: 01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	Clear	Partly cloudy	Cloudy		
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0— 3	4— 7	8— 10	0—10	%
PENNSYLVANIA																																
Allentown [2]	385	1009.1	1023.9	44	29	36.8	+7.5	72	26	13	9	0	4	29	76	2.66	-.84	.89	17	0	.8	T	7.2	ENE	--	--	--	3	4	24	8.4	--
Erie [4]	714	------	------	46	30	38.1	+11.3	73	25	15	19	0	21	--	--	6.25	+3.48	1.22	19	0	8.1	3	10.1	---	34	SW	14	1	6	24	8.9	14
Harrisburg [2]	374	1009.5	1023.7	48	32	39.8	+10.9	73	26	17	20	0	18	30	73	2.48	-.61	.64	18	0	.3	T	6.5	WNW	34	W	14	2	8	21	8.3	34
Philadelphia [4]	114	1022.7	1023.6	52	36	44.1	+11.5	74	26	22	8	0	13	34	72	2.06	-1.24	.70	17	0	.3	T	9.7	SW	29	W	7	3	7	21	8.1	39
Pittsburgh [2]	842	990.5	1021.8	49	32	40.8	+12.6	75	25	14	20	0	17	32	72	5.67	+2.62	.86	25	0	.2	T	11.6	SSW	40	SW	14	2	8	21	8.3	27
Reading	323	1010.5	1022.7	48	34	41.2	+10.1	77	26	19	20	0	16	--	--	2.54	-1.03	.62	17	0	T	T	10.0	---	45	W	14	2	7	22	8.4	28
Scranton	805	993.2	1023.4	45	30	37.7	+11.1	67	26	8	8	0	17	--	--	2.84	-.19	.96	19	0	1.9	1	6.5	---	40	W	8	5	11	15	7.2	37
RHODE ISLAND																																
Block Island	26	1021.7	1022.7	47	33	40.1	+9.1	57	5	15	8	0	16	--	--	3.14	-.64	.65	15	0	.9	T	17.7	---	73	NW	8	3	6	22	8.1	24
Providence [3]	159	1016.3	1023.0	46	29	37.4	+10.2	68	26	10	8	0	22	27	70	3.73	+.03	1.09	15	0	2.3	1	9.5	NW	39	NW	11	5	3	23	7.9	32
SOUTH CAROLINA																																
Charleston [4]	48	1024.0	1025.9	69	53	61.0	+11.1	80	27	39	8	0	0	53	81	.60	-2.42	.52	5	1	0	0	8.4	SW	28	NE	17	5	15	11	6.1	57
Columbia [4]	347	1017.6	1025.5	67	48	57.4	+11.4	80	25	31	8	0	2	49	79	3.08	-.34	1.43	6	2	0	0	9.0	SSW	26	SW	10	5	11	15	6.8	40
Greenville [2]	1040	987.5	1025.1	60	44	52.0	+11.7	73	31	31	21	0	2	46	83	3.09	-1.78	.74	14	0	0	0	7.3	SW	27	NE	7	3	4	24	8.4	29
SOUTH DAKOTA																																
Huron [2]	1301	970.5	1021.2	13	-8	2.7	-8.6	36	11	-25	26	0	31	-5	75	.47	-.09	.29	9	0	9.1	7	12.6	NW	52	SE	24	9	6	16	6.6	51
Rapid City [2]	3259	898.7	1018.2	22	-4	9.0	-11.0	50	21	-27	4	0	30	-2	68	.25	-.20	.15	5	0	2.7	2	14.1	NNW	65	NW	28	8	5	18	7.1	47
TENNESSEE																																
Chattanooga [2]	762	998.6	1023.7	61	46	53.7	+14.6	77	25	26	8	0	2	47	80	8.21	+2.95	2.36	21	3	0	0	7.8	S	30	W	6	3	1	27	8.9	20
Knoxville [2]	995	988.2	1023.6	61	43	52.0	+14.3	77	25	24	28	0	5	45	78	9.39	+4.73	3.10	19	6	0	0	11.5	SW	38	SW	4	2	5	24	8.5	25
Memphis [5]	399	1010.8	1021.2	58	42	49.9	+9.0	78	25	26	5	0	11	46	83	15.45	+10.54	3.43	20	7	T	T	10.5	S	30	NW	26	3	2	26	8.7	22
Nashville [2]	546	1002.4	1022.4	58	40	48.7	+10.1	78	25	22	8	0	9	44	84	13.92	+9.16	2.51	19	5	T	T	10.3	SSE	34	S	13	3	3	25	8.7	18
TEXAS																																
Abilene [2]	1755	955.6	1017.7	60	36	47.7	+4.6	84	25	14	4	0	15	35	65	.96	.00	.74	4	1	T	T	15.2	SSW	42	S	25	9	5	17	6.6	63
Amarillo [2]	3604	887.6	1015.6	57	22	39.4	+6.3	81	21	-1	4	0	26	16	46	T	-.51	T	0	0	T	T	13.0	SW	50	SW	14	11	6	14	5.8	74
Austin [2]	621	997.6	1019.6	64	47	55.7	+6.2	83	23	26	5	0	4	49	82	.74	-1.33	.22	15	0	T	0	10.1	S	32	SW	24	1	4	26	9.0	13
Brownsville [2]	20	1015.9	1016.6	77	61	68.7	+8.9	83	26	39	5	0	0	63	85	.18	-1.63	.12	5	0	0	0	14.0	SSE	35	SE	3	5	14	12	6.5	46
Corpus Christi [2]	44	1017.3	1018.1	75	57	65.9	+11.9	85	13	32	5	0	1	60	86	.34	-1.22	.10	5	1	0	0	14.3	SSE	47	S	24	4	11	16	7.2	47
Dallas [2]	488	1001.4	1019.3	59	39	48.9	+3.5	82	25	18	4	0	13	43	81	3.99	+1.60	1.86	9	2	1.0	1	12.0	S	45	S	24	4	5	22	8.1	27
Del Rio	960	982.7	1018.0	69	51	59.5	+7.2	87	25	33	7	0	0	50	77	.16	-.40	.08	5	0	0	0	7.4	SE	30	N	4	5	9	17	7.2	37
El Paso [2]	3916	886.9	1015.7	62	37	49.2	+5.6	75	22	21	7	0	10	28	48	.29	-.17	.25	2	0	T	T	10.9	S	47	SW	3	12	9	10	4.7	85
Fort Worth [2]	706	994.6	1019.3	58	38	47.9	+3.5	82	25	15	4	0	14	40	77	5.01	+2.96	2.99	11	1	1.0	1	15.2	S	40	NW	4	4	6	21	7.7	--
Galveston [4]	9	1019.3	1019.6	68	58	63.0	+9.2	76	31	37	7	0	0	60	92	.85	-2.56	.38	10	5	0	0	11.1	SSE	29	SE	25	4	8	19	7.4	38
Houston [4]	62	1017.3	1019.8	71	55	62.6	+9.9	80	26	32	7	0	1	59	87	4.64	+.94	3.19	18	3	0	0	10.0	S	49	N	4	0	5	26	8.9	32
Laredo [2]	418	1001.4	1016.3	77	56	66.4	+10.7	93	25	36	8	1	0	54	69	.01	-1.11	.01	1	0	0	0	9.8	SE	--	--	--	9	2	20	6.9	--
Palestine	510	1001.7	------	63	47	54.9	+6.7	81	25	23	4	0	6	--	--	4.19	+.75	1.45	15	3	.1	T	9.2	S	29	S	25	0	4	27	9.2	29
Port Arthur [4]	22	1018.6	1019.4	70	56	63.2	+9.4	78	25	34	7	0	0	60	90	1.05	-2.65	.45	14	3	T	T	10.1	S	29	S	25	2	10	19	7.8	44
San Antonio [2]	794	993.6	1018.3	67	50	58.4	+6.1	83	25	30	7	0	3	51	83	.32	-1.14	.09	12	0	T	0	10.3	NE	35	NE	4	2	5	24	8.8	20
Wichita Falls [2]	1030	981.4	1018.7	57	31	43.6	+.7	85	24	12	4	0	17	32	66	1.09	-.03	.62	4	1	1.0	T	13.2	NE	43	W	13	9	7	15	6.4	--
UTAH																																
Salt Lake City [2]	4227	868.3	1016.0	36	17	26.6	-.9	56	21	-1	3	0	26	18	67	1.80	+.82	.51	16	2	22.8	6	10.7	SSE	52	SE	14	0	5	26	8.9	41
VERMONT																																
Burlington [2]	403	1006.4	1021.9	36	17	26.4	+7.6	63	4	-11	8	0	27	18	71	2.42	+.66	.61	14	0	20.0	6	13.3	S	57	S	14	3	6	22	8.1	23
VIRGINIA																																
Cape Henry [2]	18	1024.4	1024.8	62	46	53.9	+13.7	78	26	30	21	0	4	--	--	1.76	-1.39	.62	9	0	0	0	12.8	SW	35	N	27	6	9	16	6.9	64
Lynchburg [2]	686	989.8	1024.5	57	38	47.8	+12.5	75	26	21	21	0	10	37	73	2.69	-.74	.99	13	0	T	T	10.7	SW	37	S	10	4	4	23	8.0	41
Norfolk [4]	91	1024.4	1025.4	63	45	53.9	+13.3	78	25	29	20	0	3	43	74	2.11	-.99	.67	10	0	0	0	10.7	SW	34	N	27	4	8	19	7.4	47
Richmond [4]	144	1018.6	1024.9	61	41	50.7	+12.8	79	26	24	21	0	7	40	73	2.51	-.70	.76	10	0	T	T	9.5	SSW	36	W	10	5	4	22	7.5	46
WASHINGTON																																
Ellensburg [2]	1735	950.6	1016.9	17	-5	6.4	-19.1	41	22	-28	31	0	31	2	80	1.66	+.31	.30	16	0	32.2	20	4.4	E	--	--	--	4	9	18	7.3	--
Kelso [2]	750	------	------	34	21	27.1	----	48	22	-1	18	0	25	24	87	6.77	----	1.44	25	0	32.4	16	10.6	SSE	--	--	--	2	5	24	8.4	--
North Head	211	1004.7	1012.2	39	28	33.6	-8.5	50	20	13	14	0	23	--	--	10.22	+1.44	2.85	27	0	19.6	11	16.5	E	61	S	10	4	6	21	7.9	22
Seattle [4]	125	1008.8	1013.5	33	24	28.8	-12.0	52	21	11	14	0	22	22	81	7.50	+2.56	1.77	23	0	31.0	10	10.5	S	56	S	10	2	8	21	7.9	25
Spokane [2]	1929	943.4	1015.3	17	1	9.0	-18.5	40	21	-24	29	0	30	3	75	4.13	+1.97	.84	22	0	56.9	25	9.3	SSW	35	SW	10	2	10	19	7.8	39
Tacoma	194	1006.1	1013.2	33	24	28.4	-10.4	52	20	10	31	0	25	--	--	6.98	+.84	1.62	24	0	33.3	14	10.2	N	50	NE	13	2	9	20	7.8	21
Tatoosh	86	1008.8	1012.0	34	26	30.2	-11.0	50	20	14	13	0	26	24	80	7.61	-4.22	1.79	20	0	32.3	11	21.8	E	72	NE	13	4	5	22	8.0	28
Walla Walla	991	979.7	1017.3	25	10	17.4	-15.3	54	21	-16	30	0	28	8	--	2.73	+.77	.39	23	0	28.5	12	5.4	S	34	SE	10	1	4	26	8.9	18
Yakima [2]	1076	975.6	1016.6	24	1	12.5	-14.9	55	22	-21	31	0	31	6	74	2.45	+1.54	.63	15	0	26.6	13	6.5	W	--	--	--	5	6	20	7.7	--
WEST VIRGINIA																																
Elkins [2]	1947	950.6	1023.5	55	31	42.5	+12.5	76	25	10	20	0	17	36	78	5.11	+1.33	1.06	22	0	T	T	6.6	S	38	SW	14	1	6	24	8.5	30
Parkersburg [4]	637	990.9	1022.9	53	35	44.1	+11.6	78	25	16	20	0	17	38	--	8.16	+4.58	1.44	22	1	T	T	8.1	SSW	28	W	15	2	8	21	8.1	25
WISCONSIN																																
Green Bay [2]	617	992.6	1019.6	26	5	15.7	0	43	2	-18	30	0	30	6	67	2.64	+1.10	1.05	15	1	11.9	5	11.8	W	61	W	14	9	3	19	6.5	49
La Crosse [2]	672	993.9	1020.1	25	1	12.9	-1.4	43	1	-26	27	0	29	6	73	1.46	+.48	.63	8	0	7.0	4	9.7	NW	43	W	13	7	8	16	6.5	49
Madison [2]	974	986.8	1020.0	31	10	20.7	+4.0	51	24	-8	30	0	29	13	71	2.43	+1.05	1.38	8	2	2.3	2	13.1	W	61	W	13	8	5	18	6.6	48
Milwaukee [2]	681	992.9	1019.6	35	15	24.8	+5.4	60	24	-3	18	0	29	17	74	2.17	+.39	.94	13	1	3.8	3	14.4	WNW	62	W	14	5	6	20	7.5	30
WYOMING																																
Cheyenne [2]	6094	803.9	1012.9	37	11	24.0	-1.5	60	20	-20	3	0	28	6	47	.23	-.19	.11	5	0	2.5	2	14.8	W	61	W	15	10	7	14	5.9	67
Lander [2]	5352	821.2	1013.6	30	5	17.7	-.6	55	21	-23	3	0	31	3	54	.38	-.18	.20	6	0	5.1	9	9.6	---	65	SW	27	9	8	14	6.1	56
Sheridan [2]	3790	879.1	1017.7	21	-6	7.7	-11.6	60	21	-27	25	0	30	-8	57	.85	.00	.27	9	0	13.9	4	8.2	NW	45	SW	11	5	6	20	7.4	56
PACIFIC AREA																																
Canton Island [2]	12	1008.5	1008.8	86	77	81.4	----	90	19	75	10	3	0	69	71	T	-----	T	0	0	0	0	----	---	--	--	--	8	15	8	5.2	--
Honolulu [4] [2]	15	1012.9	1013.5	76	67	71.7	+.8	79	25	63	7	0	0	64	77	11.69	+7.91	4.43	11	5	0	0	9.8	ENE	45	SW	11	4	13	14	6.9	50
Wake Island [2]	13	1013.2	1013.6	81	73	76.8	----	85	16	69	18	0	0	65	69	1.27	-----	.46	8	0	0	0	10.6	NE	--	--	--	17	11	3	3.9	--
Hilo	36	1011.2	1012.3	80	64	72.1	----	89	11	60	5	0	0	64	--	9.16	-----	3.11	19	1	0	0	6.2	SW	--	--	--	1	14	16	7.4	--
PUERTO RICO																																
San Juan [3]	82	1016.6	1019.6	77	70	73.5	-1.5	80	24	68	5	0	0	--	--	5.24	+1.09	.96	29	0	0	0	15.7	E	38	E	5	0	21	10	6.9	44

See footnotes at end of table.

CLIMATOLOGICAL DATA

WEATHER BUREAU STATIONS

Table 2—Continued

JANUARY 1950

State and station	Elevation of barometer above sea level[1]	Pressure		Temperature										Average relative humidity[6]	Precipitation							Wind				No. of days (sunrise to sunset)			Sky cover,[7] tenths (sunrise to sunset)	Possible sunshine
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point		Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	Clear	Partly cloudy	Cloudy		
	Ft.	*Mb.*	*Mb.*	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			0–3	4–7	8–10	0–10	%
ALASKA																																
Anchorage [2]	132	1022.4	1027.8	14	-4	5.1	-6.5	32	3	-17	11	0	31	0	76	0.83	-.01	0.48	3	0	13.6	18	3.5	NE	33	NW	4	12	11	8	5.3	59
Annette Island	113	1014.4	1019.0	26	12	19.1	-16.1	40	5	2	1	0	31	[illegible]	58	.77	-8.64	.33	7	0	11.4	[illegible]	9.5	NNW	--	--	--	17	5	9	3.8	--
Barrow	29	1024.4	1024.7	6	-12	-3.3	12.8	27	24	-33	21	0	31	-11	71	.55	+.39	.20	10	0	5.1	13	11.4	ESE	35	W	17	3	14	14	7.2	--
Bethel [2]	28	1027.2	1029.1	22	5	13.1	5.9	36	2	-14	31	0	31	12	89	1.03	+.13	.60	11	0	7.5	5	5.3	N	48	NW	[illegible]	6	6	19	6.3	--
Cordova [2]	45	1020.3	1022.0	26	3	14.4	-10.0	41	25	-10	7	0	31	11	80	.72	-7.54	.32	4	0	16.4	17	2.1	ENE	25	N	5	16	7	8	4.2	--
Fairbanks [2]	455	1012.2	1030.1	[illegible]	-11	-1.0	9.8	33	24	-31	6	0	31	-4	84	2.00	+1.12	.56	14	0	30.8	40	3.8	WNW	41	SW	17	3	5	23	8.4	17
Galena	139	1024.4	1029.5	[illegible]	-9	-.1	9.7	32	24	-29	9	0	31	-8	68	1.21	+.54	.46	10	0	12.1	26	6.8	N	--	--	--	5	8	18	7.1	--
Gambell	32	1024.4	1025.4	27	19	22.9	18.8	32	16	0	3	0	31	21	92	3.28	+2.37	----	10	0	32.1	11	18.0	S	47	S	31	4	1	26	9.0	--
Juneau [2]	80	1022.3	1023.2	19	-3	7.9	-17.3	32	5	-19	1	[illegible]	31	-1	67	.94	-3.12	.62	7	0	13.4	18	----	N	34	SE	4	14	10	7	4.4	74
Kotzebue [2]	20	1027.1	1027.4	15	1	8.0	15.2	33	24	-18	9	0	31	[illegible]	82	.40	-.09	.10	13	0	3.5	10	19.9	ESE	55	E	1	3	3	25	8.4	--
McGrath [2]	341	1017.3	1031.2	[illegible]	-11	-1.3	5.4	33	2	-32	10	[illegible]	28	-7	74	1.80	+.62	.95	[illegible]	0	24.9	24	3.0	WNW	--	--	--	[illegible]	2	20	6.9	--
Nome [2]	22	1027.4	1028.1	21	5	13.1	9.7	32	24	-17	5	0	31	10	88	1.87	+.78	.47	9	0	23.5	47	9.7	NE	75	E	12	0	5	22	8.8	--
Northway [2]	1718	963.1	1031.5	1	-21	-10.1	3.8	27	25	-59	1	0	31	-16	75	.98	+.33	.50	11	0	13.9	23	4.4	NW	--	--	--	7	2	22	7.6	--
St. Paul Island	28	1023.4	1024.7	37	29	32.7	7.8	41	1	13	21	0	22	32	94	1.91	-.23	.42	13	0	1.5	T	----	---	--	--	--	1	6	24	8.6	--
Wales	16	1032.9	1033.2	25	10	17.3	17.0	33	11	-13	15	-	--	---	--	.64	-.11	.18	10	0	5.7	16	----	---	72	NE	5	1	5	25	5.4	--
Yakutat	31	1020.7	1021.7	24	1	12.4	-16.0	35	4	-13	1	0	31	10	84	1.54	-9.97	.66	5	0	19.1	27	----	E	--	--	--	[illegible]	9	13	6.0	--

[1] Height of barometer cistern above mean sea level on Jan. 1, 1900, or when station was first established since Jan. 1, 1900. When station is moved to new location or airport, the pressure is reduced to the original elevation for homogeneity. These elevations do not represent the present station elevation in most cases.

[2] Data are from airport records. Pressures adjusted to original elevation, according to note **1**.

[3] Barometric, hygrometric, wind, character of day, and average cloudiness data from airport records; remainder from city office records.

[4] Barometric and hygrometric data from airport records, remainder from city office records.

[5] Barometric, temperature, degree day, and hygrometric data from airport, remainder from city office records.

[6] As of Jan. 1, 1949, relative humidity values at temperatures below 32° F. are expressed with respect to water rather than with respect to ice, as used prior to that date. Therefore, these hygrometric values before and after Jan. 1, 1949, cannot accurately be combined without necessary conversion.

[7] As of Jan. 1, 1949, "Sky cover" has been substituted for "Average cloudiness" to include smoke, snow, etc., in addition to clouds that obscure the sky.

NOTE.--Unless otherwise indicated, data in table are city office records.

HEATING DEGREE DAYS

(BASE 65° F.)

Table 3 JANUARY 1950

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Anniston	245		
Birmingham (AP)	218	1260	1647
Mobile	68	564	1022
Mobile (AP)	84	652	
Montgomery	121	843	1332
Montgomery (AP)	127	940	
ARIZONA			
Flagstaff	1180	3789	4055
Payson	870	2299	
Phoenix	418	883	970
Phoenix (AP)	469	1012	
Tucson (AP)	445	1021	
Winslow (AP)	916	2818	
Yuma (AP)	378	738	746
ARKANSAS			
Ft. Smith (AP)	637	1877	2030
Little Rock (AP)	494	1568	1886
Texarkana	389	1236	
CALIFORNIA			
Bakersfield (AP)	608	1422	
Blue Canyon	1159	2930	
Burbank (AP)	506	1035	
Eureka	662	2782	2638
Fresno (AP)	686	1710	1526
Los Angeles	443	857	656
Los Angeles (AP)	503	1099	
Mt. Shasta	1166	3319	
Oakland (AP)	642	1838	
Red Bluff (AP)	821	1783	1647
Sacramento	660	1662	1625
Sacramento (AP)	706	1852	
Sandberg	935	2266	
San Diego (AP)	395	549	770
San Francisco	553	1892	1756
San Francisco (AP)	615	2042	
San Jose	571	1480	
Santa Maria (AP)	582	1812	
COLORADO			
Denver	1039	2917	3297
Denver (AP)	1098	3183	
Grand Junction (AP)	1291	3476	
Pueblo (AP)	985	2971	3289
CONNECTICUT			
Bridgeport (AP)	866	2710	
Hartford (AP)	939	3081	3408
New Haven (AP)	891	2847	3227
DELAWARE			
Wilmington (AP)	682	2423	
DIST.OF COLUMBIA			
Washington	513	1904	2643
Washington (AP)	524	1953	
FLORIDA			
Apalachicola	44	434	801
Daytona Beach (AP)	5	260	
Fort Myers	0	90	
Jacksonville	30	382	765
Jacksonville (AP)	36	441	
Key West	0	4	37
Key West (AP)	0	5	
Melbourne (AP)	0	124	
Miami	0	33	109
Miami Beach *	0	14	
Int.Airport, Hialeah	0	32	
Orlando (AP)	4	174	
Pensacola	55	489	821
Tallahassee (AP)	42	499	
Tampa (AP)	1	150	372
West Palm Beach (AP)	0	35	
GEORGIA			
Atlanta	314	1413	1836
Atlanta (AP)	296	1377	
Athens (AP)	365	1556	
Augusta (AP)	216	996	1463
Columbus	162	1038	
Macon (AP)	164	993	
Savannah (AP)	108	695	1037
Valdosta (AP)	70	596	
IDAHO			
Boise (AP)	1222	3557	3366
Lewiston (AP)	1501	3698	
Pocatello (AP)	1314	4003	3888
ILLINOIS			
Cairo	628	1945	2401
Chicago	1020	3002	3484
Chicago (AP)	1095	3310	
Chicago University	1061	3113	
Moline (AP)	1204	3450	
Peoria (AP)	1105	3205	3537
Springfield	965	2713	3225
Springfield (AP)	1004	2977	
INDIANA			
Evansville (AP)	698	2316	2627
Ft. Wayne (AP)	975	3192	3554
Indianapolis	818	2604	3162
Indianapolis (AP)	852	2814	
South Bend (AP)	1040	3331	
Terre Haute (AP)	845	2742	
IOWA			
Burlington (AP)	1187	3355	
Charles City	1586	4246	4479
Davenport	1200	3313	3658
Des Moines	1379	3555	3754
Des Moines (AP)	1401	3657	
Dubuque	1341	3715	3977
IOWA (Cont.)			
Keokuk	1136	3136	3326
Sioux City (AP)	1628	4073	4063
KANSAS			
Concordia	1227	3074	3234
Dodge City (AP)	1089	2835	3023
Goodland (AP)	1212	3381	
Topeka	1133	2827	3044
Topeka (AP)	1125	2971	
Wichita (AP)	1065	2629	2802
KENTUCKY			
Lexington (AP)	654	2320	2791
Louisville	641	2139	2614
Louisville (AP)	630	2162	
Pikesville	447	1460	
LOUISIANA			
Baton Rouge (AP)	101	638	989
Lake Charles (AP)	130	616	
New Orleans	48	416	795
New Orleans (AP)	46	437	
Int.Airport, Moisant	47	488	
Shreveport (AP)	311	1070	1387
MAINE			
Caribou (AP)	1566	5243	
Eastport	1182	3862	4518
Greenville	1509	5061	5241
Portland (AP)	1176	3815	4009
MARYLAND			
Baltimore	562	1923	2563
Baltimore (AP)	598	2048	
Bethesda *	585	2240	
Dist. Heights *	555	2081	
Frederick	637	2264	
Riverdale *	583	2222	
Takoma Park *	569	2159	2818
MASSACHUSETTS			
Boston (AP)	886	2738	3221
Nantucket (AP)	798	2622	2936
Pittsfield	1078	3806	
Milton	968	3125	
MICHIGAN			
Alpena	1256	4036	4415
Detroit (AP)	997	3240	3624
Escanaba	1525	4501	4721
Grand Rapids	1077	3304	3726
Grand Rapids (AP)	1099	3548	
Iron Mountain *	1626	4844	
Lansing (AP)	1080	3612	
Marquette	1517	4563	4695
Muskegon (AP)	1121	3564	
Sault Ste.Marie(AP)	1530	4909	5018
Traverse City (AP)	1235	4023	
Ypsilanti (AP)	1023	3318	
MINNESOTA			
Duluth	1902	5407	5419
Duluth (AP)	1981	5740	
International Falls	2268	6414	
Minneapolis (AP)	1800	4621	
St. Cloud (AP)	1994	5262	
St. Paul	1794	4609	
MISSISSIPPI			
Jackson (AP)	271	1240	
Meridian (AP)	287	1339	1931
Vicksburg	282	1205	1741
MISSOURI			
Columbia	931	2621	3028
Columbia (AP)	987	2794	
Kansas City (AP)	1075	2679	2960
St. Joseph (AP)	1204	3084	
St. Louis	829	2295	2735
St. Louis (AP)	841	2420	
Springfield (AP)	855	2531	2723
MONTANA			
Billings (AP)	1857	4629	4212
Butte (AP)	1731	5563	
Glasgow	2460	5895	
Great Falls (AP)	2135	5034	
Havre	2379	5649	4868
Helena	1998	5304	4539
Kalispell	1894	5200	4678
Miles City (AP)			4426
Missoula (AP)	1679	4820	4491
NEBRASKA			
Grand Island (AP)	1457	3657	
Lincoln	1388	3401	3534
Lincoln (AP)	1420	3566	
Norfolk (AP)	1619	4033	
North Platte	1477	3684	3743
North Platte (AP)	1429	3765	
Omaha (AP)	1440	3539	3606
Valentine	1622	4206	4145
NEVADA			
Ely (AP)	1382	4329	
Las Vegas	730	1736	
Reno (AP)	1102	3490	3236
Tonopah	1199	3253	3303
Winnemucca	1189	3726	3734
NEW HAMPSHIRE			
Concord (AP)	1156	3896	4149
Mt. Washington	1629	7349	
NEW JERSEY			
Atlantic City	634	2066	2548
Newark (AP)	758	2437	3065
Trenton	697	2396	2965
NEW MEXICO			
Albuquerque (AP)	845	2525	2799
Clayton (AP)	914	2654	
Roswell (AP)	607	2057	2283
NEW YORK			
Albany (AP)	1046	3547	
Bear Mountain	1005	3409	
Binghamton	886	3214	3788
Binghamton (AP)	928	3442	
Buffalo (AP)	926	3207	3659
Canton	1218	4072	4639
New York	697	2192	2889
Intern'l Airport	746	2384	
La Guardia Field	730	2686	
Oswego	1005	3298	
Rochester (AP)	978	3361	3692
Schenectady	1076	3635	
Syracuse (AP)	980	3318	3790
NORTH CAROLINA			
Asheville	407	1950	2515
Asheville (AP)	451	2141	
Charlotte	356	1489	1970
Charlotte (AP)	387	1602	
Greensboro (AP)	469	1903	
Hatteras	214	902	1405
Raleigh	359	1426	1969
Raleigh (AP)	407	1635	
Wilmington	222	890	1452
Winston-Salem (AP)	469	1835	
NORTH DAKOTA			
Bismarck (AP)	2334	5767	5185
Devils Lake	2436	6300	5868
Fargo (AP)	2234	5746	
Grand Forks	2367	6092	5765
Pembina (AP)	2458	6559	
Williston	2398	5889	5393
OHIO			
Akron (AP)	889	3182	
Cincinnati	658	2169	2909
Cincinnati (AP)	728	2542	
Cleveland	846	2721	3340
Cleveland (AP)	868	2947	
Columbus	761	2582	3160
Columbus (AP)	773	2743	
Dayton (AP)	820	2757	3119
Sandusky	858	2771	3357
Toledo (AP)	959	3176	3492
Youngstown (AP)	892	3109	
OKLAHOMA			
Oklahoma City	831	2050	2268
Oklahoma City (AP)	849	2114	
Tulsa (AP)	811	2129	
OREGON			
Baker	1453	4195	4150
Baker (AP)	1492	4583	
Burns	1399	4216	
Eugene (AP)	1038	3023	
Meacham	1542	4572	
Medford (AP)	986	2944	2774
Pendleton (AP)	1496	3561	
Portland	1097	2698	2491
Portland (AP)	1172	3043	
Roseburg	901	2568	2466
Salem (AP)	1090	2998	
Troutdale	1210	3045	
PENNSYLVANIA			
Allentown (AP)	867	2924	
Curwensville	966	3699	
Erie	830	2806	3393
Harrisburg (AP)	771	2654	3088
Park Place	963	3486	
Philadelphia	642	2100	2663
Philadelphia (AP)	864	2255	
Pittsburgh	692	2469	3025
Pittsburgh (AP)	746	2691	3253
Reading	732	2450	2977
Scranton	841	2996	3498
Williamsport (AP)	883	3112	3450
RHODE ISLAND			
Block Island	755	2384	2958
Providence	847	2692	3275
Providence (AP)	876	2909	
SOUTH CAROLINA			
Charleston	150	735	1153
Charleston (AP)	160	886	
Columbia	250	1126	1556
Columbia (AP)	253	1178	
Greenville (AP)	397	1630	1885
Spartanburg	384	1608	
SOUTH DAKOTA			
Huron (AP)	1930	4807	4634
Pierre (AP)	1926	4622	4253
Rapid City (AP)	1736	4383	4030
Sioux Falls (AP)	1834	4669	
TENNESSEE			
Bristol (AP)	462	2006	
Chattanooga	313	1389	
Chattanooga (AP)	334	1633	1997
Knoxville (AP)	407	1762	2237
Memphis (AP)	465	1611	1913
Nashville (AP)	509	1851	2195
TEXAS			
Abilene (AP)	541	1411	1660
Amarillo (AP)	788	2276	2529
Austin (AP)	329	841	1128
Big Spring (AP)	497	1440	
Brownsville (AP)	74	184	440
TEXAS (Cont.)			
Corpus Christi (AP)	119	310	650
Dallas (AP)	516	1290	1543
El Paso (AP)	484	1553	1690
Del Rio	168	1624	1980
Ft. Worth (AP)	540	1346	1508
Galveston	127	400	761
Galveston (AP)	120	392	
Houston	158	516	
Houston (AP)	149	542	880
Laredo	99	316	
Lubbock	673	2000	
Palestine	353	977	1340
Port Arthur	132	524	908
Port Arthur (AP)	138	640	
San Angelo (AP)	436	1227	
San Antonio (AP)	246	688	959
Wichita Falls (AP)	661	1652	
Waco (AP)	432	1087	
UTAH			
Milford	1351	3930	
Salt Lake City	1090	3139	3298
Salt Lake City (AP)	1184	3463	3542
VERMONT			
Burlington (AP)	1191	3877	4464
VIRGINIA			
Alex. Epis. H.S. *	525	1937	
Cape Henry	363	1376	1937
Falls Church *	579	1984	
Lynchburg (AP)	529	2038	2419
Norfolk	351	1314	1910
Norfolk (AP)	371	1486	
Potomac Yards(Alex.)	487	1770	
Richmond	452	1686	2304
Richmond (AP)	483	1848	
Roanoke (AP)	534	2075	
Urbanna	434	1733	
WASHINGTON			
Ellensburg (AP)	1817	4485	
Kelso	1167	3307	
North Head	968	3093	2915
Olympia (AP)	1204	3499	
Port Angeles	1112	3724	
Seattle	1117	2908	2688
Seattle (AP)	1164	3096	
Spokane (AP)	1735	4478	3738
Stampede Pass	1747	5661	
Tacoma	1128	3100	2830
Tatoosh Island	1072	3612	3246
Walla Walla	1468	3310	2973
Yakima (AP)	1625	3960	3497
WEST VIRGINIA			
Elkins (AP)	694	2854	3314
Huntington (AP)	515	1951	
Parkersburg	652	2353	2870
WISCONSIN			
Green Bay	1530	4472	4439
La Crosse	1522	4068	4335
La Crosse (AP)	1610	4451	
Madison	1373	3927	4229
Madison (AP)	1363	4073	
Milwaukee	1228	3680	3883
Milwaukee (AP)	1237	3733	
WYOMING			
Casper (AP)	1460	4390	
Cheyenne (AP)	1265	3950	4131
Lander (AP)	1460	4505	4806
Rock Springs	1400	4342	
Rock Springs (AP)	1459	4609	
Sheridan (AP)	1775	4639	
ALASKA			
Anchorage (AP)	1855	6815	
Annette Island (AP)	1419	4549	
Barrow	2119	9868	
Bethel (AP)	1605	6853	
Cordova	1565	6030	
Fairbanks	2044	8115	
Galena	2016	8126	
Juneau	1764	5785	
McGrath (AP)	2059	8156	
Northway (AP)	2330	9180	
St. Paul Island	993	5680	
Yakutat	1623	5786	

* Data from cooperative stations.

The "base" for computing heating degree days is a mean daily outdoor temperature of 65°. Heating degree days are obtained by subtracting the mean daily temperature from this base, i.e., a mean daily temperature of 53° makes 12 heating degree days. If the mean daily outdoor temperature is equal to or greater than 65°, there are no heating degree days. Fuel requirements are related to heating degree days; therefore, a comparison of the accumulated current heating degree days with the long period averages should show, in general, whether fuel requirements have been above or below normal.

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CHARLES SAWYER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

FEBRUARY 1950

Volume I

2

WASHINGTON: 1950

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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume I No. 2

FEBRUARY 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

The January weather pattern of severe cold in the Northwest, abnormal warmth east of the Mississippi River, and heavy precipitation in most of the area from the Mississippi Valley to the Appalachians continued through the first week of February. In fact, the most severe weather of the winter occurred in the Northwest during this period. Many stations in the eastern portions of Washington and Oregon registered their lowest temperatures of record, weekly averages were below zero at some stations, and departures ranged from 30° to 35° below normal. At Cut Bank, Montana frost had penetrated to a depth of 7 feet, and many cities in northern Montana and eastern Washington experienced difficulties with frozen water mains. With low temperatures and additional light to heavy snowfall, the heavy snowcover at the end of January was maintained from Washington to the Great Lakes. Some farmers remained isolated in North Dakota, schools were still closed in parts of Washington, and many roads were snow-blocked throughout the area.

During the first 2 or 3 days of the month it was rather cold in the Southwest, and subzero temperatures were recorded in the Great Plains as far south as Kansas, northern Missouri, and Illinois. However, temperatures rose throughout the West the latter part of the first week, reaching above-normal levels in the Great Plains.

East of the Mississippi temperatures for the first week averaged above normal, especially in the southern portion, although the first of the week was somewhat cooler than normal in the Lake Region. In the southern states daily plus departures ranged from 5° to over 20°. Precipitation was negligible in the southern Rocky Mountain States, parts of the Midwest, and most of the Lake Region. Heavy precipitation fell in the Pacific States and heavy rain which fell in a broad belt from Texas to New England caused a continuation of flooding along many streams in the Ohio and lower Mississippi Valleys. Glaze occurred in several areas, but was especially severe in northern Arkansas and northern Texas.

With the exception of a few western areas temperatures during the second week averaged above normal over the entire country. In the Northwest there was considerable thawing which caused muddy roads and some local flooding in Washington. Precipitation was general over the West early in the week and occurred daily in Washington and Oregon, being quite heavy in the coastal regions. During a storm on the 6th and 7th Salt Lake City, Utah recorded 1.43 inches of precipitation in 24 hours, a new record. Precipitation was frequent east of the Great Plains, with heavy rains in the Ohio and lower Mississippi Valleys further aggravating the flood situation. On the 11th and 12th much thunderstorm activity and a number of tornadoes occurred in south-central areas. The unusually warm weather in the South caused abnormal advancement of vegetation, especially fruit.

Widespread glaze which occurred near the end of the second week in the Northeast and Midwest continued during the first few days of the 3d week. A number of deaths and many injuries resulted from accidents due to the ice. Damage to power and communication lines and trees amounted to many millions. The ice was as much as 2 inches thick in some of the worst areas.

The temperature pattern was reversed during the last half of the month. Cold air masses which had formerly stalled between the Great Plains and the Appalachians began to move across the eastern states holding temperatures to normal levels or considerably below, while persistently above-normal temperatures prevailed in the West.

At the beginning of the third week heavy rains over the Ohio and lower Mississippi Valleys caused flooded streams to rise still further. Light to locally heavy snowfall in northern areas from New England to Minnesota blocked many roads, and mixed rain and snow that fell along the northeastern coast made highways extremely slippery. About the middle of the week a cold air intrusion brought below-freezing temperatures to the central Gulf Coast on the 17th and to the Everglades region of southern Florida on the 18th.

A second cold air mass, accompanied by blizzard conditions began moving into north-central areas on the 17th. Light snow, strong winds, and subzero temperatures accompanied its advance across the Lake Region, and by the end of the week below-freezing minima extended almost to the Gulf. In the far West mostly fair weather and much-above normal temperatures, which reached record high levels in Arizona, removed the snow from most agricultural valleys except in the extreme north.

During the last week temperatures were normal in the lower Great Plains and the far West, but the weather was cold and windy east of the Mississippi River. Precipitation was again heavy in the lower Ohio and Mississippi Valleys, resulting in continued flooding in southern Indiana and Ohio, southeastern Missouri, and parts of Arkansas. Light to locally heavy snow fell north of the Ohio Valley, and a belt of freezing rain, which extended from southern Missouri into Ohio, caused considerable damage to overhead wires in the latter State.

On the 23d cold air brought below-freezing minima almost to the Gulf, and again near the end of the month freezing temperatures extended deep into the South and subzero temperatures were recorded in portions of the Ohio Valley. On the 25th 1 to 3 inches of snow fell in a belt extending from southern Indiana and Ohio across West Virginia and northern Virginia to the Atlantic Coast. Snow fell frequently in north-central areas, and drifting new snow blocked roads in northeastern Montana. Mild temperatures prevailed west of the Continental Divide and precipitation was generally limited to occasional light, scattered showers, except frequent moderate to heavy showers in western Washington and Oregon, and light to moderate showers on 2 or 3 days in parts of Arizona and New Mexico. This was the coldest week of the winter in the northeastern quarter of the country, with minus temperature departures ranging up to 14° or more at a number of stations in the Lake Region. Temperatures were above normal elsewhere, with departures ranging up to 10° in the Southwest and up to 15° on the eastern slopes of the northern Rockies.

Average temperatures for the month were above normal, except in a few north-central areas, the extreme Northeast, and a portion of the State of Washington where slight deficiencies occurred. The greatest monthly excess of temperature was in the northern Rockies and lower Great Plains where plus anomalies ranged up to more than 10°.

Monthly totals of precipitation were generally below normal in most of the area west of the Great Plains, most extreme north-central areas, and the area south and east of a line joining northern Virginia with New Orleans, La. The driest areas were in the western portion of the lower Great Plains and in the extreme Southeast where a number of stations received only 10 percent or less of their normal precipitation. The greatest totals were accumulated in a belt comprising the lower Ohio Valley, the central Mississippi Valley, most of Arkansas, and a portion of east Texas where totals were twice the February normal amounts.

At the end of the month farm activities were moving at a normal pace in the South, but were much restricted in the northeastern quarter of the country due to cold, wet weather. Small grains were mostly satisfactory, and oat seeding progressed in the lower Great Plains. Pastures were good in the South and were beginning to grow in the far West and Southwest. Moisture was badly deficient in the southern portion of the western Great Plains.

WINTER (December-February), 1949-50

Average winter temperatures were below normal in the Pacific States and in northern areas west of the Great Lakes. Minus departures were as much as 6° in the area from central Washington eastward through most of North Dakota, ranging up to 10° in north-central Montana. Elsewhere over the country averages were above normal, with plus departures of 4° to over 6° in the lower Great Plains and 6° to over 8° in the area east of the Mississippi and south of the Ohio River.

State average temperatures show the past winter to be the second coldest on record in Oregon and Washington and the third coldest in Montana and North Dakota. This was Florida's warmest winter and the second to fourth warmest in other southeastern States and a few middle western States.

The temperature pattern in the eastern part of the United States was much the same as that of 1948-49. In each case temperatures were rather persistently above normal during the entire winter. This is the first time, at least in the last 60 years, that two winters with record-breaking warmth have occurred consecutively in the eastern portion of the country. The severe cold in the West during the past winter was limited to northern areas, while that of 1948-49 affected a large part of the northern Great Plains and all areas westward to the Pacific coast.

Precipitation was much above normal in the Ohio and central Mississippi Valleys for each of the three winter months, but much below in the Southeast and in the southern portion of the western Great Plains. Small grains in the latter area were badly in need of moisture at the end of February.

In other areas small grains came through the winter in satisfactory condition except that some acreage in the flooded lowlands of the central Mississippi and lower Ohio Valleys was damaged. Livestock also were in generally good condition at the end of February. Some livestock were lost in local areas along the Northern Border, mostly in Montana, but the loss was small compared to that of 1948-49.

In those portions of the Ohio and Mississippi Valleys where precipitation was much-above normal, generally only light flooding occurred during December. During January, however, considerable flooding occurred along several major streams in Indiana, Kentucky, Missouri, and the east Gulf drainage area. Flooding continued at intervals during the entire month of February in southern Indiana, southeastern Missouri, portions of Ohio, and in Arkansas.

CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

FEBRUARY 1950

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	54.4	+5.5	Selma	84	1	Valley Head	19	†17	4.19	-1.05	Pickensville	13.10	Fort Morgan	0.53
Arizona	49.0	+3.8	Parker	89	19	2 Stations	-9	†1	1.00	-.31	Bright Angel R.S.	3.63	Topock	.00
Arkansas	46.4	+2.7	Ashdown	85	25	Lead Hill	12	3	6.22	+2.63	Sheridan	10.94	Melbourne 1/31-2/28	1.47
California	48.6	+1.3	Blythe	90	25	Boca	-34	1	2.77	-1.09	Brush Creek R.S.	13.86	Greenland Ranch	.00
Colorado	31.8	+4.6	Las Animas	77	25	Kremmling	-40	3	.67	-.30	Wolf Creek Pass	4.16	3 Stations	T
Florida	64.3	+3.7	Palatka	89	2	3 Stations	23	18	1.03	-2.00	La Mont	3.42	2 Stations	.00
Georgia	54.4	+4.7	Hawkinsville	86	2	2 Stations	16	27	2.26	-2.41	Flat Top	8.17	Brooklet 1W	.23
Idaho	29.0	+1.0	Beuhl	74	26	Sun Valley	-46	2	1.67	-.05	Roland W. Portal	8.04	Chilly Barton Flat	T
Illinois	31.3	+1.3	2 Stations	66	6	Morris	-16	26	3.87	+1.91	Brookport Dam 52	9.82	Freeport	.82
Indiana	31.8	+1.1	Jeffersonville	66	13	Collegeville	-16	26	5.37	+2.90	Petersburg	8.28	Howe	2.00
Iowa	22.4	-.2	Clarinda	54	28	2 Stations	-24	26	1.56	+.47	Mt. Pleasant	2.74	Waukon	.15
Kansas	37.9	+3.9	2 Stations	77	†5	Burr Oak	-9	2	.73	-.25	Ft. Scott	2.23	Elkhart	.00
Kentucky	40.0	+2.7	Pikeville	79	14	Covington WB AP	-1	26	5.30	+1.79	Lovelaceville	10.14	Louisa Lock 3	2.40
Louisiana	58.6	+4.7	Hammond	85	8	Ruston LPI	25	23	6.88	+2.30	Oakridge	19.39	New Orleans Jourdan	1.02
Maryland-Delaware	36.2	+2.7	2 Stations	63	15	2 Stations	-2	21	3.04	+.09	Oakland	4.73	Ocean City	1.57
Michigan	21.2	+1.1	Monroe	50	14	Kenton	-31	25	2.44	+.79	Port Huron	5.64	Glen Arbor	.29
Minnesota	12.1	-.4	Madison	50	27	Red Lake Falls	-40	25	.35	-.40	Rochester	1.33	6 Stations	T
Mississippi	54.5	+4.9	Eupora	87	7	Pontotoc	22	23	6.96	+1.97	West Point Exp. Sta.	11.26	Pascagoula High Sch.	1.70
Missouri	36.1	+2.8	Anderson	74	8	Tarkio	-13	1	2.65	+.55	Carruthersville	7.85	Kidder	.83
Montana	25.3	+4.1	Harlowton	74	26	2 Stations	-41	†1	.51	-.13	Trout Creek 2W	5.20	4 Stations	.00
Nebraska	29.8	+3.3	Indianola	77	28	Wenzel	-24	2	.82	+.12	Tekamah	2.31	2 Stations	T
Nevada	38.4	+3.3	Las Vegas	84	25	Wilkins	-32	8	.29	-.72	Mt. Charleston Lodge	2.84	8 Stations	.00
New England	20.6	-2.1	Greenville, R.I.	55	9	Lemington 3NE, Vt.	-32	8	3.07	+.03	Westfield 2NE, Mass.	6.73	Bethlehem, N.H.	.49
New Jersey	31.6	+.8	Cape May	58	12	Dayton 3NW	-10	†8	3.93	+.51	Rutherford	5.95	Cape May	1.88
New Mexico	41.8	+3.6	3 Stations	83	†8	Gavilan	-23	8	.29	-.40	Jones Trading Post	2.10	24 Stations	.00
New York	22.0	-.5	Elmira	55	12	Saranac Lake	-40	21	3.55	+.89	Cherry Valley	8.36	Saranac Lake	1.54
North Carolina	46.9	+4.0	5 Stations	82	†1	Mt. Mitchell	1	27	1.95	-2.03	Hyatt Creek	9.08	Elizabethtown Lock 2	.75
North Dakota	8.8	-.9	Medora	54	16	Belcourt I.R.	-41	25	.32	-.15	New England	1.16	2 Stations	T
Ohio	32.4	+2.4	Ironton	77	14	Wauseon	-8	25	4.23	+1.84	Lima	6.40	Chesapeake	2.49
Oklahoma	46.1	+4.9	Ft. Reno	86	15	Kenton	4	1	2.02	+.51	Antlers	7.77	Boise City	.07
Oregon	34.3	-1.5	4 Stations	70	†25	Ukiah	-37	8	3.43	+.11	Valsetz	21.24	Mitchell	T
Pennsylvania	29.5	+1.1	Hewitt 2S	59	11	Hawley 1S Wallen Dam	-12	8	3.81	+1.03	Long Pond	7.12	Jackson Summit	1.87
South Carolina	51.4	+3.5	3 Stations	84	†2	Cheraw	18	27	1.25	-2.83	Sassafras Mtn.	3.15	Bethera	.26
South Dakota	20.2	+.9	Longvalley	75	27	Pollock	-27	1	.57	+.02	Timber Lake	1.73	2 Stations	T
Tennessee	45.1	+3.8	Newport	79	14	2 Stations	13	27	6.44	+1.93	Ethridge	10.91	Maymead	2.19
Texas	54.2	+2.9	Rio Grande City	95	13	Dalhart Exp. Sta.	6	1	2.07	+.29	Goose Creek	13.55	10 Stations	.00
Utah	31.6	+1.5	Zion N.P.	77	25	Scofield Dam	-35	3	.67	-.59	Alta	3.39	3 Stations	.00
Virginia	39.7	+2.3	Emory	77	13	Gordonsville 6S	4	27	2.32	-.70	Clinchport	6.04	Norfolk WB AP	.86
Washington	32.2	-2.9	Prosser	66	25	Newport	-39	1	5.12	+1.28	Forks 1E	25.85	Richland 2NW	.61
West Virginia	36.9	+3.4	2 Stations	79	15	Cranberry Glades	-2	26	3.50	+.38	Thomas	6.62	Mathias	1.77
Wisconsin	17.2	+.6	West Salem	47	28	Mellon	-38	25	.90	-.30	Gays Mills	2.07	Spooner	.27
Wyoming	27.4	+5.2	Whalen Dam	74	26	Bondurant	-49	3	.48	-.37	Bondurant	3.82	6 Stations	.00
Hawaii	70.6	1.3	Mahukona	89	13	Haleakala R.S.	41	21	6.70	-.08	Kukui	38.00	2 Stations	.06
Puerto Rico	71.6	-1.1	Patillas Dam (3)	93	3	Guineo Reservoir (2)	50	22	7.19	+4.85	Rio Blanco (1800'elev.)	25.27	Guayanilla (San Fran.)	.63

† Other dates also

CLIMATOLOGICAL DATA

Table 2 — FEBRUARY 1950

State and station	Elevation of barometer above sea level[1]	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Average dew point	Average relative humidity[2]	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover[2], tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb.*	*Mb.*	°F	°F.	°F.	°F.	°F.		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			*0– 3*	*4– 7*	*8– 10*	*0–10*	%
ALABAMA																																
Birmingham [2]	700	998.0	1021.1	65	40	52.4	+5.9	77	1	25	17	0	8	40	68	4.28	-0.78	1.21	10	5	0.0	0	9.7	SSE	39	SE	14	12	4	12	5.4	57
Mobile [4]	57	1012.9	1021.3	69	51	60.0	+5.3	79	2	35	17	0	0	50	76	.94	-4.39	.37	10	0	0	0	9.4	NNE	38	SW	14	9	12	7	5.1	57
Montgomery [4]	218	1013.5	1021.2	68	47	57.1	+5.5	81	1	35	27	0	0	44	67	4.13	-1.32	2.85	7	3	T	0	7.9	S	28	SW	14	12	7	9	4.5	70
ARIZONA																																
Flagstaff [2]	7018	788.0	------	49	21	34.8	+4.0	60	25	0	1	0	28	25	69	1.29	-.79	.50	6	1	6.7	5	6.4	N	--	--	--	11	6	11	5.1	--
Phoenix [4]	1107	977.0	1016.4	74	46	60.1	+5.0	84	25	35	1	0	0	38	50	1.00	+.38	.64	3	1	T	0	5.5	E	21	S	26	14	4	10	4.6	78
Tucson [2]	2555	926.9	1016.2	71	43	57.2	+5.0	79	18	32	1	0	2	30	41	1.48	+.52	1.22	2	0	0	0	5.4	SSE	28	S	26	12	4	12	4.8	82
Yuma [2]	213	1011.5	1016.6	78	49	63.2	----	87	25	35	1	0	0	29	31	.16	-----	.13	2	1	0	0	4.6	NNE	34	NW	11	14	7	7	3.9	89
ARKANSAS																																
Fort Smith [2]	463	1002.7	1019.8	58	36	46.8	+4.0	74	25	25	15	0	10	37	72	3.01	+.45	2.66	7	4	T	T	8.2	NE	34	SW	28	11	4	13	5.6	50
Little Rock [2]	265	1007.8	1020.2	57	38	47.7	+2.8	81	28	28	3	0	10	39	76	9.27	+5.43	5.15	9	4	T	T	8.3	NNE	30	SW	21	11	4	13	5.8	46
CALIFORNIA																																
Eureka [1]	60	1018.6	------	54	42	47.8	+.6	63	5	27	1	0	3	--	--	4.61	-1.87	1.11	13	0	0	0	6.7	---	31	SE	5	4	6	18	7.3	49
Fresno [2]	327	1007.8	1020.0	64	40	51.5	+1.2	74	26	25	1	0	3	46	82	1.84	+.41	1.01	5	0	0	0	5.8	NW	25	NW	11	10	9	9	5.1	78
Los Angeles [4]	104	1014.9	1018.5	66	47	56.7	+1.2	79	15	38	1	0	0	46	79	1.67	-1.40	1.31	4	0	0	0	3.7	W	27	N	11	11	5	12	5.3	66
Red Bluff [2]	353	1007.1	1020.0	61	39	49.7	+.3	74	26	25	1	0	5	38	68	4.33	+.41	2.25	6	0	T	T	7.1	NW	36	SE	6	5	8	15	6.7	68
Sacramento [4]	25	1016.9	1020.1	61	42	51.6	+1.5	72	24	26	2	0	2	43	77	3.27	+.25	1.44	7	0	0	0	6.0	SE	24	SE	5	16	6	6	4.1	75
San Diego [2]	28	1015.6	1018.9	64	47	55.6	+.5	72	3	38	1	0	0	47	75	1.62	-.41	1.35	5	0	0	0	5.0	WNW	17	S	11	8	10	10	5.6	62
San Francisco [4]	18	1019.6	1020.5	58	46	51.9	-.3	67	25	36	1	0	0	44	82	2.33	-1.52	1.63	5	0	0	0	11.6	WNW	26	W	19	11	8	9	5.0	68
COLORADO																																
Denver [4]	5292	836.1	1016.8	52	29	40.5	+7.7	70	26	9	1	0	17	19	50	.33	-.20	.24	5	0	4.1	3	7.6	S	31	NW	23	10	6	12	5.1	78
Grand Junction [2]	4602	863.2	1023.1	44	24	34.3	+1.4	65	26	1	2	0	24	24	67	.47	-.11	.39	7	1	T	6	4.7	E	29	NW	28	8	7	13	6.0	69
Pueblo [2]	4690	856.4	1017.2	57	22	39.8	+7.7	73	25	4	2	0	25	14	43	.16	-.31	.15	2	0	3.2	3	6.9	W	37	W	24	8	11	9	5.6	80
CONNECTICUT																																
Hartford [2]	159	1014.2	1020.3	34	19	26.6	-.6	49	9	-2	21	0	28	18	72	4.41	+.58	1.76	14	0	18.9	9	9.3	N	37	S	9	4	6	18	7.5	47
New Haven [2]	107	1015.9	------	36	23	29.3	+1.4	48	9	1	21	0	24	--	--	3.60	-.12	1.26	13	0	12.6	6	8.4	NNE	29	NW	20	5	4	19	7.5	41
DISTRICT OF COLUMBIA																																
Washington [4]	112	1016.9	1021.2	46	32	38.7	+3.4	55	9	18	20	0	12	26	64	2.68	-.59	.58	10	0	T	T	11.9	NW	38	NW	23	6	5	17	7.0	45
FLORIDA																																
Apalachicola	35	1020.0	1021.0	70	54	62.2	+5.9	78	7	39	17	0	0	--	--	1.17	-2.74	.88	6	1	0	0	8.4	---	30	SE	14	12	9	7	4.4	62
Jacksonville [4]	43	1020.3	1021.6	72	54	62.8	+4.8	83	2	38	17	0	0	48	66	1.31	-1.18	1.30	3	1	0	0	8.8	NW	--	--	--	12	6	10	4.8	--
Key West [4]	21	1019.6	1020.2	77	68	72.7	+2.2	82	24	60	18	0	0	62	73	2.81	+1.47	1.46	8	0	0	0	12.9	NE	25	S	23	15	7	6	4.0	72
Miami [4]	25	1019.3	1020.5	75	64	69.4	+1.4	82	23	47	17	0	0	58	68	1.37	-.66	.75	4	0	0	0	8.9	N	36	NE	27	17	9	2	3.7	83
Pensacola [4]	56	1019.0	1021.4	69	52	60.9	+5.7	77	2	38	17	0	0	49	--	.63	-3.71	.31	4	1	0	0	7.8	N	27	W	22	10	10	8	5.0	74
Tampa [2]	35	1020.0	1021.4	77	54	65.3	+3.4	84	13	39	18	0	0	52	68	.21	-2.35	.18	2	0	0	0	7.1	N	34	S	22	12	11	5	4.4	76
GEORGIA																																
Atlanta [2]	1173	978.7	1021.1	61	41	50.8	+5.5	73	1	28	27	0	5	37	65	3.02	-2.04	.89	8	2	0	0	10.8	NW	34	SW	28	10	8	10	5.0	58
Augusta [2]	182	1014.6	1021.1	65	43	53.8	+3.9	80	1	31	27	0	2	38	59	1.55	-2.45	.71	7	0	0	0	8.9	W	--	--	--	12	5	11	5.0	--
Macon [2]	370	1007.8	1021.2	67	43	55.2	----	80	2	28	18	0	6	41	64	2.30	-----	1.08	6	2	0	0	9.3	WNW	28	S	28	12	7	9	4.7	68
Savannah [2]	65	1019.3	1021.7	68	47	57.5	+5.1	81	2	33	17	0	0	45	67	.52	-2.62	.22	6	0	0	0	12.2	SSE	38	W	23	13	6	9	4.6	81
IDAHO																																
Boise [2]	2858	923.8	1022.4	45	26	35.3	+1.7	66	26	-10	1	0	23	27	72	1.09	-.35	.31	11	0	3.4	4	7.8	ESE	31	SE	6	4	7	17	7.3	53
Lewiston [1]	1436	967.8	1021.2	42	27	34.7	----	58	24	-15	2	0	17	28	77	1.14	----	.39	14	0	.6	6	6.4	E	--	--	--	2	4	22	8.6	--
Pocatello [2]	4478	865.9	1023.6	39	21	30.2	+3.3	62	26	-17	2	0	25	22	73	.34	-.86	.15	8	0	1.2	8	9.1	SW	37	SW	20	6	6	16	6.6	62
ILLINOIS																																
Cairo	357	1007.1	------	50	35	42.3	+3.8	62	8	19	26	0	14	--	--	8.88	+5.75	4.79	10	3	T	T	9.5	---	34	SE	13	8	4	16	6.6	46
Chicago [2]	673	996.6	1020.3	33	19	26.3	+1.4	42	11	-2	25	0	27	20	77	3.35	+1.25	1.13	12	2	16.6	8	10.7	WNW	35	NW	28	6	5	17	7.1	44
Moline [2]	606	998.0	1021.7	33	17	24.7	+1.2	43	10	-12	26	0	26	18	75	1.76	+.18	.74	10	0	7.9	6	10.1	WNW	36	NW	28	7	3	18	6.9	47
Peoria [2]	609	997.3	1020.5	35	19	26.9	-.3	46	4	-10	26	0	25	21	79	2.75	+.74	.73	13	2	10.7	7	12.0	WNW	31	W	18	6	8	14	6.8	46
Springfield [4]	636	997.3	1020.4	39	22	30.5	+2.9	50	10	0	26	0	24	25	78	2.25	-.08	.72	11	1	3.8	2	12.9	NW	36	NW	28	6	7	15	6.9	42
INDIANA																																
Evansville [2]	431	1004.7	1020.8	47	30	38.4	+3.5	63	6	11	26	0	18	31	77	6.60	+3.36	1.98	10	2	T	T	9.2	WNW	30	S	28	5	6	17	7.2	45
Fort Wayne [2]	857	987.8	1020.2	35	20	27.2	+.6	46	10	-1	25	0	25	22	80	4.43	+2.08	1.59	14	2	8.7	3	9.1	W	26	SW	14	3	5	20	7.9	41
Indianapolis [2]	823	989.8	1020.2	40	23	31.6	+1.3	52	13	-4	26	0	22	25	80	5.32	+2.59	2.32	15	1	3.9	2	11.3	WNW	47	W	24	3	9	16	7.5	42
IOWA																																
Burlington [2]	702	994.6	1021.1	35	18	26.8	+.4	45	10	-11	26	0	27	21	83	2.32	+.60	.97	10	1	6.4	5	13.7	NW	40	NW	18	7	7	14	6.8	55
Charles City	1015	983.7	------	27	8	17.9	+.8	38	6	-11	24	0	28	--	--	2.10	+1.10	1.00	10	0	13.8	11	6.7	---	20	SE	27	13	7	8	4.9	61
Des Moines [4]	860	988.8	1021.6	33	15	23.9	+.2	49	20	-4	1	0	28	17	80	1.83	+.71	.83	8	2	16.4	12	9.8	NW	30	NW	28	9	7	12	5.8	54
Dubuque	699	994.6	------	31	15	23.3	+1.1	42	6	-6	24	0	28	16	76	1.51	+.13	.93	10	0	10.1	7	6.2	---	21	NW	28	28	6	8	6.5	54
Sioux City [2]	1138	978.7	1021.9	31	11	21.1	+.7	46	9	-14	1	0	28	14	77	.71	-.11	.36	8	0	7.8	5	10.0	NW	35	NW	28	9	6	13	6.0	75
KANSAS																																
Concordia	1392	969.2	------	46	23	34.3	+4.5	66	17	3	1	0	27	22	66	1.24	+.36	.71	6	1	4.7	3	8.0	---	29	N	27	11	7	10	4.9	62
Dodge City [2]	2509	928.9	1018.6	54	25	39.3	+6.1	70	20	7	1	0	21	25	66	.24	-.53	.20	3	1	T	T	13.2	N	42	SW	27	12	6	10	5.1	74
Topeka [2]	987	987.5	1021.2	46	24	34.9	----	65	17	9	1	0	26	24	74	.68	-.84	.43	5	2	.4	T	10.0	NNW	35	SW	23	7	8	13	6.1	61
Wichita [2]	1358	969.5	1019.2	52	27	39.4	+5.0	71	17	10	1	0	18	28	69	1.61	+.36	.88	7	1	.1	T	12.9	S	52	S	23	10	6	12	5.4	64
KENTUCKY																																
Lexington [2]	989	983.7	1020.7	47	29	37.9	+2.5	67	13	10	26	0	21	30	74	3.64	+.02	.91	13	2	T	T	13.1	SSW	--	--	--	7	2	19	7.4	--
Louisville [2]	525	1003.1	1020.5	47	31	39.0	+1.8	66	18	12	26	0	18	30	72	6.33	+2.17	2.14	13	2	T	T	8.9	WNW	37	S	28	6	5	17	7.1	41
LOUISIANA																																
New Orleans	53	1019.0	------	71	54	62.3	+5.0	82	2	42	15	0	0	--	--	1.40	-2.85	.65	7	-	0	0	6.8	---	26	SE	13	9	7	12	5.6	54
New Orleans [2]	30	1019.0	1020.7	71	51	60.8	----	81	2	37	17	0	0	52	76	4.08	-----	2.80	5	1	0	0	5.1	SSE	40	SSE	13	8	10	10	5.8	--
Shreveport [2]	181	1010.2	1019.3	65	45	55.0	+4.0	84	28	32	15	0	1	47	77	4.30	+1.01	2.22	11	6	0	0	10.2	S	28	SW	8	7	5	16	6.4	48
MAINE																																
Caribou [2]	628	993.6	1016.8	18	-2	8.1	-2.6	30	25	-20	8	0	28	-20	63	2.31	+.37	.57	15	0	35.6	34	14.8	NW	51	NW	21	9	7	12	5.7	--
Eastport	75	1014.9	1017.6	29	11	19.7	-1.8	46	9	-11	21	0	28	---	--	3.58	+.23	.81	13	0	28.8	10	13.2	---	43	E	23	9	6	13	6.1	55
Portland [2]	103	1014.9	1019.0	29	8	18.3	-2.5	45	9	-14	8	0	28	11	72	2.45	-1.55	.76	11	0	29.2	14	7.3	N	34	SE	15	10	3	15	6.3	60
MARYLAND																																
Baltimore [4]	123	1016.3	1021.3	44	31	37.5	+2.1	53	9	17	21	0	13	25	65	4.12	-.73	.98	12	0	T	0	10.7	NNW	40	W	23	5	9	14	6.8	40
MASSACHUSETTS																																
Boston [2]	124	1014.2	1019.3	35	21	28.0	-.8	52	9	-1	21	0	27	17	65	3.81	+.44	1.57	11	0	15.2	6	13.7	WNW	52	E	15	8	4	16	6.8	50
Nantucket [2]	12	1018.0	1018.6	39	24	31.5	+.8	47	9	4	21	0	24	24	74	3.25	-.12	1.19	13	0	5.5	2	15.7	NW	37	WNW	23	3	7	18	7.5	34

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation of barometer above sea level	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F or above	Temperature: No. of days: Min. 32° F. or below	Average dew point	Average relative humidity[3]	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In.	In.	In.			In.	In.	M p. h.		M p. h.						0–3	4–7	8–10	0–10	%
MICHIGAN																																
Alpena	609	996.3	------	28	15	21.4	+3.4	37	28	-4	20	0	28	--	--	2.36	+.65	.80	15	0	25.8	16	11.2	---	45	E	14	2	7	19	7.9	32
Detroit [2]	730	991.5	1019.5	33	20	26.5	+1.7	46	14	1	25	0	26	20	77	4.85	+2.67	2.43	13	0	13.0	7	11.7	NW	36	NW	28	5	6	17	7.2	41
Escanaba	612	997.0	------	26	9	17.6	+2.2	39	28	-6	25	0	28	--	--	.71	-.78	.48	8	0	8.2	16	10.7	---	33	N	18	8	6	14	6.2	69
Grand Rapids [4]	707	993.6	1020.0	32	21	26.2	+2.5	43	5	3	20	0	27	19	80	2.34	+.10	.83	13	0	17.8	9	12.6	W	42	NE	13	3	4	21	8.2	34
Lansing [2]	878	986.8	1020.2	31	17	23.8	+1.6	41	5	-4	25	0	28	18	79	3.34	+1.44	.96	15	0	13.7	10	16.6	W	37	NE	13	5	6	17	7.4	38
Marquette	734	991.9	------	26	13	19.3	+3.0	38	17	-2	25	0	28	--	--	1.75	-.15	.58	11	0	28.0	33	9.0	---	25	N	18	7	3	18	7.0	52
Sault Ste. Marie [2]	614	992.2	1020.3	22	6	14.0	+2.6	34	9	-20	20	0	28	8	75	1.31	-.17	.38	13	0	19.2	25	9.7	E	32	W	28	4	7	17	7.4	45
MINNESOTA																																
Duluth [4]	1133	966.8	1021.3	25	6	15.2	+3.8	41	16	-20	24	0	28	4	73	.50	-.55	.35	9	0	5.0	20	12.5	NW	45	NW	23	12	8	8	4.8	69
Minneapolis	919	986.1	1021.7	27	6	16.4	+.5	41	9	-18	24	0	28	8	72	.68	-.22	.44	7	0	7.9	12	10.8	NW	36	NW	28	8	8	12	5.6	55
Rochester [2]	523	982.7	------	26	3	14.4	-1.7	38	27	-19	26	0	28	--	--	1.33	+.50	.79	6	0	14.9	15	9.9	NW	--	--	--	9	7	12	5.9	--
MISSISSIPPI																																
Meridian [4]	375	1007.1	1021.2	68	42	55.1	+5.5	81	1	28	17	0	6	45	73	5.26	-.19	2.77	8	3	T	0	7.5	SW	--	---	--	11	3	14	5.5	--
Vicksburg [4]	247	1011.2	1020.5	64	47	55.3	+3.5	77	12	36	15	0	0	45	--	9.15	+4.33	2.96	12	6	T	0	6.7	SSE	30	NW	9	9	6	13	6.1	53
MISSOURI																																
Columbia [4]	784	990.5	1020.0	46	26	36.2	+3.8	63	20	10	26	0	20	26	77	1.45	-.68	.67	9	3	.7	T	8.5	SSE	23	NW	18	8	8	12	6.0	53
Kansas City [2]	963	991.9	1020.3	46	25	35.5	+4.3	65	17	12	2	0	23	25	69	1.22	-.27	.77	8	1	.5	T	9.4	NW	34	W	28	10	4	14	6.0	52
St. Joseph [2]	967	984.1	1020.4	43	22	32.2	+2.6	63	20	4	1	0	27	23	75	1.01	-.66	.71	10	1	.9	1	11.3	NNW	28	NW	18	9	7	12	5.7	50
St. Louis [4]	568	998.6	1020.0	45	29	37.4	+2.6	59	10	10	26	0	18	28	76	3.31	+.75	1.26	10	3	1.2	1	11.8	NW	35	SW	28	9	4	15	6.3	52
Springfield [2]	1324	970.5	1019.3	50	28	39.1	+5.1	63	17	16	3	0	21	31	78	2.03	-.32	1.13	7	3	T	1	10.8	SSE	34	SE	28	10	6	12	5.8	49
MONTANA																																
Billings [2]	3570	890.6	1017.5	44	24	33.8	+9.6	67	26	-3	1	0	24	23	67	.41	-----	0.19	7	0	5.0	4	11.2	SW	50	NW	27	4	12	12	6.5	61
Butte	5533	828.7	1022.4	37	9	23.1	+4.8	58	26	-29	2	0	28	15	71	.29	-0.13	0.18	9	0	4.3	5	8.4	NW	--	---	--	5	6	17	7.1	--
Glasgow	2086	942.1	1020.6	25	3	13.6	+1.2	39	27	-24	1	0	28	9	80	.51	+0.11	0.20	6	0	6.5	18	----	---	--	---	--	4	9	15	7.3	--
Great Falls [2]	3657	886.6	1015.6	44	27	35.3	+10.0	67	26	0	1	0	22	19	55	.01	-0.54	0.01	1	0	0.2	3	17.7	SW	65	SW	8	5	4	19	7.4	71
Havre	2507	926.2	1019.3	30	7	18.4	+4.8	49	16	-6	2	0	28	--	--	.24	-0.26	0.13	5	0	2.4	16	8.4	NE	34	SW	9	3	11	14	6.9	49
Helena [2]	4124	873.4	1019.6	41	21	30.8	+9.2	68	26	-14	3	0	26	20	67	.14	-0.23	0.09	5	0	2.7	5	6.5	W	35	SW	27	4	9	15	7.3	62
Kalispell	2973	913.0	1020.0	35	19	26.9	+3.6	49	15	-23	1	0	26	19	--	.82	-0.29	0.20	12	0	7.7	17	5.9	S	--	--	--	4	1	23	8.6	--
Miles City [2]	2371	932.6	1020.0	33	10	21.5	-----	48	16	-17	1	0	28	16	--	.62	-----	0.24	8	0	6.5	7	9.0	SSE	--	--	--	4	11	13	7.0	--
Missoula [2]	3263	903.5	1021.7	35	17	26.1	+2.3	47	15	-22	3	0	28	20	82	.50	-0.30	0.25	9	0	3.4	9	3.4	NW	25	NW	26	2	5	21	8.5	33
NEBRASKA																																
Lincoln [4]	1189	976.3	1021.6	39	19	28.9	+2.8	62	27	-3	1	0	27	20	80	1.64	+.69	.57	8	1	9.6	8	9.2	N	37	NW	17	10	4	14	5.9	63
Norfolk [2]	1551	963.4	------	32	12	22.0	-1.3	50	9	-16	1	0	28	--	--	.55	-.32	.45	3	0	7.2	7	----	---	--	---	--	10	5	13	6.0	--
North Platte [2]	2821	917.7	1019.7	46	17	31.4	+4.8	63	27	-4	2	0	27	22	75	.65	+.12	.51	6	0	7.1	6	7.8	NW	56	NE	27	8	7	13	5.9	62
Omaha [2]	1105	979.7	1021.6	35	16	25.4	+1.1	53	27	-11	1	0	28	18	76	1.40	+.51	.90	8	1	9.2	7	11.4	NW	37	NW	18	9	7	12	6.0	57
Valentine	2598	925.5	------	40	14	27.4	+6.0	65	27	-8	14	0	28	19	77	.60	+.05	.42	3	0	6.5	7	7.6	---	34	N	27	7	7	14	6.0	76
NEVADA																																
Ely [2]	6262	810.0	------	47	19	33.0	+6.4	63	25	-11	2	0	26	--	--	.13	-.86	.08	3	0	1.2	1	10.4	---	47	S	4	9	8	11	5.7	73
Reno [2]	4400	867.9	1019.5	55	23	39.0	+3.3	70	25	0	2	0	26	25	63	.30	-.88	.25	4	0	.1	1	4.9	S	43	S	5	11	7	10	5.3	78
Winnemucca [2]	4339	870.3	1020.7	50	23	36.4	+2.9	68	25	-2	2	0	26	24	61	.35	-.56	.28	4	0	2.4	T	7.6	---	45	W	6	7	9	12	6.2	72
NEW HAMPSHIRE																																
Concord [2]	289	1008.5	1019.7	29	8	18.6	-1.7	46	9	-21	8	0	28	10	67	2.31	-.58	.89	11	0	19.2	11	6.7	WNW	42	W	20	4	11	13	7.1	45
Mt. Washington	6274	792.1	1017.6	11	-6	2.3	-2.7	28	9	-35	20	0	28	--	--	3.27	-2.21	1.28	17	0	27.4	10	----	---	--	---	--	6	5	17	7.3	28
NEW JERSEY																																
Atlantic City	52	1018.0	1019.6	43	31	37.1	+3.5	52	11	9	21	0	12	--	--	3.81	+.45	1.29	12	0	T	0	----	---	49	NE	14	6	6	16	7.1	53
Newark [2]	30	1019.3	1020.4	39	24	31.5	+1.7	50	24	6	21	0	23	21	67	3.92	+.40	1.15	14	0	7.2	3	12.4	NW	37	NW	27	4	4	20	7.4	--
Trenton	190	1012.9	1020.0	39	26	32.5	+1.8	50	9	7	21	0	18	--	--	3.52	+.25	.98	13	0	2.7	1	10.6	---	38	NW	27	4	9	15	7.1	37
NEW MEXICO																																
Albuquerque [2]	5314	849.6	1017.1	58	32	44.8	+4.3	70	25	20	1	0	16	24	48	.38	+.06	.28	5	0	T	T	5.6	N	40	SE	20	12	6	10	4.6	71
Roswell [2]	3619	892.7	1016.9	66	31	48.3	+5.8	79	7	22	4	0	19	23	42	.03	-.54	.03	1	0	T	T	5.9	S	34	NE	12	15	7	6	3.7	88
NEW YORK																																
Albany [2]	97	1012.9	1020.2	30	11	20.5	-.9	43	11	-16	8	0	28	14	73	4.14	+1.68	1	42	14	0	31.7	16	9.7	WNW	49	NW	20	4	6	18	7.5	48
Binghamton [4]	871	988.2	1020.3	34	18	25.8	+1.8	49	11	-6	21	0	27	17	73	4.51	+2.24	1.47	18	0	27.0	10	7.0	WSW	29	W	23	1	7	20	8.2	40
Buffalo [2]	768	990.9	1019.9	32	18	24.8	+1.1	45	9	-3	20	0	28	18	75	4.26	+1.31	1.73	16	0	19.3	7	15.4	WSW	54	SW	23	1	8	19	8.2	38
Canton	448	1002.4	1019.3	25	6	15.4	-.4	40	11	-30	21	0	28	--	--	2.71	+.44	1.02	12	0	24.3	14	8.3	---	36	SW	23	5	5	18	7.3	46
New York City [4]	314	1008.5	1020.3	39	26	32.9	+1.6	50	12	5	21	0	17	22	68	4.15	+.33	1.23	14	0	6.6	2	----	---	57	NW	20	4	6	18	7.4	40
Oswego	335	1006.8	1019.3	30	18	24.0	+1.3	43	9	-8	21	0	25	--	--	3.92	+1.23	.91	18	0	34.1	21	11.4	---	29	NW	3	1	6	21	8.7	23
Rochester [2]	523	1000.0	1020.0	31	17	24.4	+.5	44	11	-2	20	0	27	19	79	5.07	+2.38	2.41	18	0	26.4	15	12.7	WSW	50	SW	23	0	7	21	8.5	54
Syracuse [2]	596	997.0	1020.2	30	15	22.4	-.5	46	9	-13	21	0	27	16	75	4.12	+1.40	1.26	19	0	44.1	18	10.5	W	36	NW	2	3	4	21	8.4	33
NORTH CAROLINA																																
Asheville	2253	------	------	55	33	44.0	+5.5	74	1	20	27	0	15	--	--	2.06	-1.09	.51	12	0	.1	T	----	---	34	SE	9	9	6	13	5.9	56
Charlotte [4]	779	993.9	1021.2	58	39	48.3	+4.4	76	1	27	18	0	6	34	64	1.30	-2.88	.51	10	0	0	0	8.7	SSW	26	SW	28	9	8	11	5.7	62
Greensboro [2]	886	988.5	1021.4	53	32	42.3	+2.9	65	7	21	4	0	15	31	68	1.66	-2.04	.72	10	1	0	0	10.9	NE	28	NW	19	7	10	11	6.0	51
Hatteras	11	1020.3	1020.8	59	46	52.5	+5.1	71	2	29	27	0	1	43	72	1.23	-2.80	.64	8	3	0	0	13.9	NNW	38	S	23	7	10	11	6.0	65
Raleigh [4]	376	1004.7	1020.9	56	37	46.5	+3.3	72	14	22	27	0	9	33	67	1.57	-2.35	.43	9	1	T	0	7.2	SW	25	SW	15	10	7	11	5.5	52
Wilmington [4]	72	1019.6	1021.2	63	44	53.4	+5.5	79	1	28	27	0	2	43	--	1.62	-1.64	.60	9	1	0	0	8.4	SW	30	SW	23	9	9	10	5.2	74
NORTH DAKOTA																																
Bismarck [2]	1677	958.0	1022.8	20	-4	7.9	-.6	40	27	-25	1	0	28	2	77	.55	+.11	.27	6	0	9.0	16	10.2	E	36	NW	28	4	9	15	7.1	59
Devils Lake	1478	965.5	------	15	-6	4.3	-.8	34	27	-29	25	0	28	-2	76	.10	-.40	.05	4	0	1.6	22	8.7	---	33	NW	28	4	7	17	7.2	71
Fargo [2]	940	986.1	1023.1	17	-5	5.8	-2.3	34	27	-30	25	0	28	-1	72	.26	-.43	.17	4	0	2.7	18	12.6	NNW	43	NW	28	8	9	11	5.5	74
Williston	1878	949.5	--- --	23	4	13.2	+5.1	44	16	-12	1	0	28	6	74	.64	+.23	.28	6	0	6.4	15	7.2	---	31	NW	17	3	5	20	7.7	67
OHIO																																
Cincinnati [4]	627	987.5	1020.4	46	30	37.8	+3.4	66	14	6	26	0	19	27	75	5.57	+2.6	2.09	16	2	3.1	3	----	---	--	---	--	--	--	--	---	31
Cleveland [2]	762	990.9	1019.6	37	22	29.2	+2.9	61	14	8	26	0	25	24	80	4.64	+2.13	1.77	17	0	12.8	3	12.8	WSW	36	SW	14	3	3	22	8.3	23
Columbus [4]	822	989.2	1020.1	41	26	33.6	+2.9	65	14	8	26	0	21	27	78	3.22	+.55	1.00	17	0	2.0	1	10.5	WNW	42	SW	14	4	6	18	7.8	44
Dayton [2]	1003	982.7	1020.1	40	24	31.5	+1.6	64	14	0	26	0	22	26	80	4.57	+1.88	1.22	16	1	5.8	2	12.0	NW	47	SW	14	3	6	19	8.1	33
Sandusky	629	997.0	------	37	23	30.1	+2.7	67	14	5	25	0	24	--	--	4.53	+2.38	1.92	13	1	4.8	2	10.5	---	32	W	28	3	7	18	7.9	34
Toledo [2]	628	995.9	1019.9	35	20	27.4	+1.4	54	14	-4	25	0	25	22	81	4.32	+2.27	1.62	11	0	9.3	4	13.7	SW	42	SW	14	5	5	18	7.9	33
OKLAHOMA																																
Oklahoma City [4]	1214	971.6	1018.8	58	34	45.7	+6.1	76	25	17	1	0	11	35	67	1.32	+.21	.97	4	3	T	T	9.5	N	30	S	23	14	4	10	4.8	69
Tulsa [2]	674	994.2	1018.9	56	32	44.4	+5.3	75	25	20	3	0	13	33	70	2.48	+.99	1.24	7	3	.1	0	11.1	S	43	S	23	11	5	12	5.3	58

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation of barometer above sea level[1]	Pressure		Temperature										Average relative humidity[6]	Precipitation					Wind				No. of days (sunrise to sunset)			Sky cover, tenths (sunrise to sunset)	Possible sunshine
											No. of days						No. of days		Snow, Sleet, Hail				Fastest mile						
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F. or above	Min. 32° F. or below	Average dew point		Total	Departure from normal	Greatest in 24 hours	.01 inch or more	With thunderstorms	Total	Max. depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy		
	Ft.	*Mb.*	*Mb.*	°F	°F	°F.	°F	°F		°F.				°F	%	*In.*	*In.*	*In*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			0–3	4–7	8–10	0–10	%
OREGON																															
Baker [4]	3373	898.1	1022.6	40	23	31.3	+2.3	60	26	-17	1	0	24	24	--	.36	-.87	.21	6	0	3.1	7	5.9	SSE	26	SW	26	3	3	22	8.0	42
Burns [1]	4162	875.0	------	40	17	28.9	+.3	55	24	-16	2	0	26	--	--	.80	-.43	.33	6	0	7.5	15	7.5	---	--	---	--	4	2	22	8.0	--
Eugene [2]	373	1005.8	1019.8	49	33	41.2	----	65	25	-3	3	0	7	37	87	5.28	----	1.29	19	0	0.6	7	7.8	S	--	---	--	2	4	22	8.5	--
Meacham [2]	4056	877.1	1020.6	37	23	30.0	----	55	26	-4	1	0	25	24	79	3.40	----	.90	16	0	20.0	37	6.4	ESE	--	---	--	2	5	21	8.5	--
Medford [2]	1329	971.9	1020.6	52	32	42.0	-.3	64	25	6	1	0	11	35	80	1.18	-.84	.38	12	0	0	1	6.3	SE	--	---	--	3	5	20	8.1	--
Portland [4]	39	1018.3	1019.5	48	36	42.0	-.1	62	25	7	2	0	5	34	81	6.10	+.74	1.35	18	0	.5	7	7.6	SE	48	S	7	2	3	23	8.6	26
Roseburg [1]	510	1001.0	------	54	37	45.5	+2.1	70	25	17	1	0	5	--	--	2.84	-1.65	.48	18	0	T	4	3.8	---	20	S	6	2	3	23	8.6	42
PENNSYLVANIA																															
Allentown [2]	385	1006.1	1021.0	36	22	29.2	-.6	49	11	3	21	0	27	20	71	3.58	+.28	.98	12	0	6.8	3	9.2	ENE	--	---	--	4	5	19	7.4	--
Erie [4]	714	------	1020.1	34	24	29.0	+2.1	48	9	6	20	0	24	22	--	4.97	+2.39	1.83	16	1	12.3	3	9.2	---	42	SE	14	1	5	22	8.8	14
Harrisburg [2]	374	1006.8	1021.0	38	26	32.0	+1.6	50	24	10	21	0	22	21	66	3.15	+.19	.80	11	0	6.0	4	9.4	WNW	35	NW	26	4	7	17	7.6	45
Philadelphia [4]	114	1019.6	1020.8	40	29	34.4	+.5	52	11	10	21	0	18	24	69	4.15	+.83	1.13	12	0	1.3	1	10.9	NW	29	E	14	5	5	18	7.1	46
Pittsburgh [2]	842	988.5	1019.8	40	25	32.4	+2.6	51	9	8	20	0	22	24	73	3.74	+1.12	.62	20	0	5.4	1	11.2	NW	34	SW	24	3	4	21	8.3	33
Reading	323	1008.5	1020.7	39	27	32.9	+2.4	51	9	9	21	0	19	--	--	4.23	+.81	1.12	12	0	3.9	3	12.4	---	64	E	14	4	5	19	7.3	38
Scranton	805	989.8	1020.3	35	22	28.1	+.8	48	11	1	21	0	26	--	--	2.85	-.19	.75	14	0	12.9	5	7.7	---	35	NW	20	6	6	16	6.9	40
RHODE ISLAND																															
Block Island	26	1018.0	1019.0	38	25	31.5	+1.1	51	9	3	21	0	22	--	--	3.94	+0.28	1.33	12	0	5.5	2	---	---	73	NW	20	5	7	16	7.1	46
Providence [3]	159	1013.2	1019.5	36	21	28.4	-.6	53	9	-2	21	0	26	18	68	4.44	+.80	1.88	13	0	12.9	7	10.0	WNW	38	NW	25	8	3	17	6.8	42
SOUTH CAROLINA																															
Charleston [4]	48	1019.3	1021.2	65	49	57.1	+4.7	79	2	35	27	0	0	43	67	.28	-2.61	.18	5	1	0	0	9.7	SW	29	SW	22	14	7	7	4.4	70
Columbia [4]	347	1012.5	1021.0	64	42	52.6	+4.4	79	1	28	27	0	3	39	67	1.07	-2.70	.39	6	1	0	0	8.2	SW	32	W	23	12	7	9	4.6	64
Greenville [2]	1040	982.7	1020.5	58	38	48.1	+4.8	71	1	27	18	0	7	36	67	1.49	-3.69	.61	4	0	0	0	8.6	SW	32	N	27	12	5	11	5.4	62
SOUTH DAKOTA																															
Huron [2]	1301	972.2	1022.2	27	6	16.2	+1.9	44	8	-13	1	0	28	11	80	.58	0	.29	7	0	9.2	6	11.7	SSE	47	NW	17	8	5	15	6.5	63
Rapid City [2]	3259	901.8	1019.2	43	17	29.9	+8.1	64	19	-5	1	0	28	18	68	.06	-.42	.05	2	0	.7	1	13.2	NNW	56	NW	27	5	8	15	7.0	58
TENNESSEE																															
Chattanooga [2]	762	995.6	1021.0	59	37	47.7	+5.5	70	25	25	17	0	10	37	69	5.21	+.33	1.31	9	4	0	0	7.6	S	40	SW	14	10	5	13	6.0	47
Knoxville [2]	995	985.1	1020.9	56	35	45.9	+5.1	71	13	19	27	0	13	35	69	5.72	+1.21	1.72	11	2	T	0	11.1	SW	40	SW	14	8	7	13	6.1	52
Memphis [2]	399	1009.8	1020.5	55	40	47.2	+2.9	73	8	29	26	0	5	37	72	8.25	+3.89	3.63	11	5	T	T	10.6	SSW	34	NW	28	8	6	14	6.2	50
Nashville [2]	546	1001.0	1020.7	55	34	44.0	+2.4	71	12	23	5	0	17	36	77	7.78	+3.65	2.36	12	5	T	T	8.7	NW	33	NW	22	5	7	16	7.0	40
TEXAS																															
Abilene [2]	1755	9956.3	1017.7	65	41	52.9	+6.9	82	7	27	1	0	5	38	63	.30	-.71	.19	3	1	T	T	13.7	SSW	44	SW	23	10	6	12	5.3	75
Amarillo [2]	3604	9889.6	1016.8	62	30	45.9	+9.8	77	5	15	2	0	18	25	50	.20	-.51	.13	3	1	T	T	12.2	S	42	NE	23	12	9	7	4.4	76
Austin [2]	621	9998.0	1019.9	66	46	56.4	+3.0	80	24	31	23	0	2	49	79	3.79	+1.44	1.86	12	7	0	0	8.6	S	29	N	28	8	4	16	6.6	45
Brownsville [2]	20	1020.0	1017.0	78	60	68.9	+6.3	85	12	44	14	0	0	60	78	.71	-.78	.29	5	0	0	0	12.0	SSE	36	S	12	7	6	15	6.2	52
Corpus Christi [2]	44	1018.0	1018.5	74	55	64.7	+8.0	86	12	39	14	0	0	59	83	2.51	+1.03	2.06	8	4	0	0	11.2	SSE	45	S	11	6	9	13	6.6	48
Dallas [2]	488	1001.0	1019.0	63	43	53.0	+3.0	81	25	30	1	0	2	43	72	5.59	+3.31	2.59	7	6	T	T	10.5	S	33	S	23	11	5	12	5.4	57
Del Rio	960	9983.4	1017.2	70	50	59.9	+3.9	88	28	34	14	0	0	51	77	.35	-.19	.20	6	2	0	0	7.0	E	26	NW	13	6	6	16	6.4	45
El Paso [2]	3916	9887.2	1015.5	67	40	53.4	+4.8	75	25	30	14	0	1	26	39	.26	-.15	.26	2	0	T	T	8.8	S	40	W	11	16	6	6	3.6	81
Fort Worth [2]	706	9994.6	1019.0	64	42	53.0	+5.7	82	28	29	1	0	4	41	70	2.47	+.71	1.06	7	5	T	T	13.6	S	33	SSW	23	12	3	13	5.1	--
Galveston [4]	9	1019.3	1019.4	70	57	63.8	+7.5	78	9	42	15	0	0	58	83	2.65	-.18	1.15	8	4	0	0	10.6	S	36	S	21	9	4	15	6.1	53
Houston [4]	62	1017.3	1019.7	71	52	61.3	+5.9	82	8	38	15	0	0	54	81	5.00	+2.12	2.36	9	4	0	0	8.7	SE	38	SW	12	4	9	15	7.3	38
Laredo [2]	418	1002.0	1017.1	76	55	65.4	+4.9	92	28	37	14	3	0	53	70	.36	-.45	.17	5	3	0	0	9.9	SE	--	---	--	4	5	19	7.4	--
Palestine	510	------	------	65	47	56.0	+4.8	82	25	34	14	0	0	--	--	4.57	+1.52	1.96	10	7	0	0	8.3	S	27	SW	12	7	5	16	6.4	50
Port Arthur [4]	22	1018.0	1019.0	70	56	62.5	+5.4	78	1	41	15	0	0	55	84	4.64	+1.10	2.91	7	5	0	0	9.0	S	41	S	12	8	9	11	5.9	54
San Antonio [2]	794	9993.9	1017.0	67	46	56.7	+1.3	79	26	31	23	0	2	49	81	1.43	-.22	.44	11	3	0	0	9.7	SE	37	NE	22	6	5	17	7.3	41
Wichita Falls [2]	1030	9981.4	1018.4	63	37	50.0	+2.3	85	7	24	1	0	9	36	63	.87	-.45	.56	4	2	0	0	12.4	S	38	ESE	12	14	6	8	4.3	--
UTAH																															
Salt Lake City [2]	4227	874.7	1022.4	46	26	36.2	+4.1	68	25	-4	2	0	20	25	66	1.19	-.05	1.05	4	2	2.3	4	7.2	SE	35	SE	6	9	5	14	5.9	64
VERMONT																															
Burlington [2]	403	1004.4	1020.2	26	8	17.0	-2.4	40	9	-19	21	0	28	9	70	1.31	-.26	.43	13	0	19.7	9	9.2	NNW	36	SW	24	3	10	15	7.3	35
VIRGINIA																															
Cape Henry	18	1019.6	1020.3	53	39	45.7	+4.5	71	15	25	27	0	4	--	--	.91	-2.32	.35	11	0	1.0	1	14.0	---	41	N	3	8	4	16	6.5	58
Lynchburg [2]	686	985.8	1020.7	49	31	39.6	+1.3	63	2	16	27	0	16	27	66	2.12	-1.03	.61	12	0	1.6	1	8.9	SSW	34	W	23	7	6	15	6.5	46
Norfolk [4]	91	1019.6	1021.0	53	38	45.4	+2.7	72	14	23	27	0	5	35	71	1.09	-2.13	.48	13	0	.7	1	11.9	N	32	W	23	5	7	16	7.0	--
Richmond [4]	144	1014.6	1021.1	51	33	41.8	+2.2	64	22	17	27	0	13	31	72	1.65	-1.52	.40	12	1	3.0	3	6.9	SSW	34	SW	22	5	9	14	6.8	49
WASHINGTON																															
Ellensburg [2]	1735	956.0	1020.7	35	17	25.9	-5.1	47	19	-27	1	0	28	21	84	.86	-.12	.28	10	0	7.6	15	5.0	NW	--	---	--	2	6	20	8.1	--
Kelso	750	------	------	46	33	39.3	----	59	25	2	2	0	8	35	84	7.58	----	2.37	21	0	.5	5	9.7	SSE	--	---	--	2	3	23	8.6	--
North Head	211	1009.1	1016.9	47	38	42.4	-.6	58	28	20	1	0	3	--	--	11.86	+4.41	2.67	24	1	T	T	18.3	S	66	S	7	2	4	22	8.5	17
Seattle [4]	125	1012.9	1017.3	48	38	43.2	+.4	59	25	12	1	0	3	36	82	5.73	+1.84	.96	20	0	1.0	4	11.8	S	42	S	8	2	3	23	8.4	22
Spokane [2]	1929	948.5	1020.0	37	23	29.8	-1.5	49	26	-22	1	0	24	24	80	1.93	+.16	.51	14	0	11.2	26	9.0	SSW	40	SW	8	2	6	20	8.6	48
Tacoma	194	1010.2	1017.3	48	36	42.0	+1.4	59	25	11	1	0	4	--	--	5.09	+.40	.92	23	0	.2	5	8.5	S	36	S	8	3	4	21	8.1	26
Tatoosh Island	86	1011.9	1014.9	45	37	41.1	+.1	51	15	26	1	0	3	38	87	16.47	+7.02	1.80	23	0	T	7	19.1	E	59	S	25	1	1	26	9.2	18
Walla Walla	991	984.1	1021.0	42	28	34.9	-2.2	65	25	-14	3	0	12	26	--	1.83	+.07	.50	13	0	2.9	10	4.8	S	25	W	6	3	4	21	8.2	27
Yakima [2]	1076	979.7	1020.3	41	18	29.4	-4.6	58	24	-25	1	0	26	22	77	1.16	+.34	.43	10	0	8.4	15	6.2	W	--	---	--	3	7	18	7.8	--
WEST VIRGINIA																															
Elkins [2]	1947	946.8	1020.6	44	24	34.3	+3.3	60	14	8	26	0	23	28	79	3.08	0	.86	21	1	8.1	3	7.2	WNW	36	W	22	5	3	20	8.1	30
Parkersburg	637	------	---	46	29	37.2	+3.0	73	14	12	26	0	19	--	--	3.26	+.13	1.37	16	1	2.5	1	---	---	26	W	22	3	7	18	7.8	28
WISCONSIN																															
Green Bay [2]	617	995.3	1020.8	26	7	16.8	-.6	36	5	-19	25	0	28	8	67	1.45	-.11	.64	7	0	15.7	10	11.4	NE	50	W	28	7	8	13	6.2	51
La Crosse [2]	672	995.6	1021.5	28	4	15.9	-1.1	40	5	-19	25	0	28	10	73	1.27	+.20	.76	7	0	12.7	11	9.4	NW	39	NW	28	9	7	12	5.9	64
Madison [2]	974	987.8	1020.9	30	12	21.0	+1.9	40	6	-10	25	0	28	14	72	1.65	+.15	1.03	9	1	12.4	10	12.9	NE	42	NE	13	8	5	15	6.5	56
Milwaukee [2]	681	993.6	1020.2	30	18	24.0	+2.8	39	6	-7	25	0	27	18	75	1.39	-.44	.87	10	1	8.6	6	13.2	WNW	37	NE	13	8	4	16	6.7	34
WYOMING																															
Cheyenne [2]	6094	810.4	1017.7	47	21	33.8	+6.5	70	26	-1	1	0	25	15	48	.15	-.49	.11	3	0	1.1	1	14.3	W	56	W	24	6	10	12	6.2	72
Lander [2]	5352	828.0	1018.6	45	19	31.6	+9.1	61	26	-3	2	0	27	14	52	.18	-.45	.15	3	0	3.4	3	5.6	---	47	W	24	8	12	8	5.2	72
Sheridan [2]	3790	884.2	1019.3	41	16	28.2	+5.6	65	26	-17	2	0	28	20	72	.57	-.13	.15	9	0	7.5	5	7.2	S	37	NW	27	5	5	18	7.3	62
PACIFIC AREA																															
Canton Island [2]	12	1008.1	1008.8	87	78	82.4	----	90	23	75	9	4	0	71	73	.29	----	.15	6	0	0	0	----	---	--	---	--	3	20	5	5.6	--
Hilo [2]	36	1014.9	1016.0	80	64	71.8	----	85	8	61	16	0	0	64	81	18.19	----	8.42	20	0	0	0	5.3	SW	--	---	--	0	14	14	7.5	--
Honolulu [4]	15	1016.6	1017.0	78	70	73.6	+2.8	80	9	65	20	0	0	64	73	1.60	-2.15	.74	14	0	0	0	10.5	ENE	29	NE	20	2	11	15	7.5	52
Wake Island [2]	13	1015.6	1016.1	81	73	76.7	----	83	14	69	1	0	0	65	71	.44	----	.19	6	0	0	0	12.2	E	--	---	--	12	14	2	4.1	--
PUERTO RICO																															
San Juan [3]	82	1014.6	1016.6	78	69	73.7	-1.2	84	17	67	17	0	0	--	--	6.87	+4.03	2.58	20	0	0	0	8.4	NE	32	NE	3	2	16	10	6.7	51

CLIMATOLOGICAL DATA

Table 2—Continued

FEBRUARY 1950

State and station	Elevation of barometer above sea level[1]	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F or above	Temperature: No. of days: Min. 32° F or below	Average dew point	Average relative humidity[6]	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover,[7] tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F.	°F.	°F.		°F.				°F	%	In.	In.	In.			In.	In.	M p h		M p h.			0– 3	4– 7	8– 10	0–10	%
ALASKA																																
Anchorage [2]	141	1003.7	1009.1	19	-4	7.3	-11.3	33	27	-21	6	0	28	-7	61	T	-.67	T	0	0	T	18	6.2	NNE	50	N	3	16	7	5	3.8	84
Annette Island	113	999.4	1003.4	39	32	35.4	-.7	44	25	25	6	0	14	33	88	9.32	+2.32	1.12	27	0	25.5	22	17.0	ESE	--	---	--	0	4	24	9.3	--
Barrow	29	1025.1	1025.7	-16	-32	-23.8	-7.2	19	1	-50	11	0	28	-31	66	.41	+.21	.18	6	0	4.1	19	10.2	WNW	32	SW	28	16	5	7	3.9	--
Bethel [2]	28	1012.5	1013.9	3	-10	-3.7	-12.7	29	1	-24	18	0	28	-9	74	.23	-.59	.13	5	0	2.1	7	15.0	N	50	N	12	17	3	8	3.4	--
Cordova [2]	44	997.0	999.0	30	10	20.1	-5.0	42	23	15	5	0	27	14	85	1.07	-3.32	.39	10	0	4.9	17	4.6	E	23	NNE	4	6	4	18	7.1	--
Fairbanks [2]	442	1000.7	1019.6	-10	-35	-22.5	-22.0	20	28	-52	13	0	28	-27	--	.25	-.25	.22	2	0	3.5	43	3.2	N	41	SW	1	13	10	5	3.8	61
Galena	125	1014.9	1020.0	-10	-30	-20.0	-16.5	17	1	-45	15	0	28	-30	50	.12	-.54	.10	2	0	1.2	27	7.0	N	--	---	--	21	3	4	2.0	--
Gambell	32	1020.3	1021.3	16	6	10.9	+7.5	33	4	-3	23	0	28	6	78	.59	-.26	.21	9	0	5.9	14	20.4	NNE	65	NE	22	4	6	18	6.9	--
Juneau [2]	22	1003.1	1004.0	28	18	23.4	-4.1	41	23	3	5	0	28	18	77	2.22	-1.98	.40	21	0	27.8	34	---	E	29	SE	19	0	0	28	9.8	23
Kotzebue [2]	20	1021.7	1022.4	-4	-18	-11.1	-6.9	14	28	-32	12	0	28	-17	71	.28	+.01	.11	5	0	2.8	13	16.8	E	--	---	--	18	2	8	3.4	--
McGrath [2]	341	1002.4	1016.3	-2	-34	-18.0	-18.8	22	1	-49	15	0	28	-24	65	.07	-1.12	.07	1	0	.7	24	4.5	NNE	--	---	--	23	2	3	2.0	--
Nome [2]	15	1019.0	1019.6	6	-13	-3.3	-8.9	25	28	-26	12	0	28	-6	78	.49	-.32	.33	4	0	5.1	25	10.7	NW	74	W	1	17	4	7	3.3	--
Northway [2]	1718	949.5	1017.3	-11	-35	-23.2	-14.3	12	26	-54	7	0	28	-30	60	.04	-.34	.03	3	0	1.3	23	3.9	NW	--	---	--	6	8	14	6.8	--
St. Paul Island	28	1012.2	1013.5	27	18	22.4	-.9	37	5	11	24	0	28	18	79	.70	-.81	.36	9	0	3.9	2	----	---	--	---	--	5	4	19	7.7	--
Umiat	340	1015.2	------	-20	-38	-29.3	-5.2	14	1	-57	26	0	28	---	--	.16	+.03	.04	8	0	1.7	13	8.3	W	55	W	1	13	2	13	5.0	--
Wales	18	1023.7	1024.4	7	-7	0	+.5	29	4	-20	13	0	28	---	--	.76	-.14	.16	12	0	7.5	20	----	---	--	---	--	11	6	11	5.5	--
Yakutat	31	998.1	999.3	33	19	25.7	-3.8	44	24	5	6	0	28	22	77	3.29	-5.37	----	19	0	26.9	37	----	ESE	--	---	--	2	6	20	8.3	--

[1] Height of barometer cistern above mean sea level on Jan. 1, 1900, or when station was first established since Jan. 1, 1900. When station is moved to new location or airport, the pressure is reduced to the original elevation for homogeneity. These elevations do not represent the present station elevation in most cases.

[2] Data are from airport records. Pressures adjusted to original elevation, according to note 1.

[3] Barometric, hygrometric, wind, character of day, and average cloudiness data from airport records; remainder from city office records.

[4] Barometric and hygrometric data from airport records, remainder from city office records.

[5] Barometric, temperature, degree day, and hygrometric data from airport, remainder from city office records.

[6] As of Jan. 1, 1949, relative humidity values at temperatures below 32° F. are expressed with respect to water rather than with respect to ice, as used prior to that date. Therefore, these hygrometric values before and after Jan. 1, 1949, cannot accurately be combined without necessary conversion.

[7] As of Jan. 1, 1949, "Sky cover" has been substituted for "Average cloudiness" to include smoke, snow, etc., in addition to clouds that obscure the sky.

NOTE.--Unless otherwise indicated, data in table are city office records.

HEATING DEGREE DAYS

Table 2

FEBRUARY 1950

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Anniston			
Birmingham (AP)	354	1614	2144
Mobile	176	740	1336
Mobile (AP)	198	850	
Montgomery	237	1080	1737
Montgomery (AP)	265	1205	
ARIZONA			
Flagstaff	839	4628	5025
Payson	515	2814	
Phoenix	137	1020	1233
Phoenix (AP)	167	1179	
Tucson (AP)	216	1237	
Winslow (AP)	613	3431	
Yuma (AP)	69	807	928
ARKANSAS			
Ft. Smith (AP)	505	2382	2645
Little Rock (AP)	489	2057	2465
Texarkana	373	1609	
CALIFORNIA			
Bakersfield (AP)	276	1704	
Blue Canyon	665	3595	
Burbank (AP)	265	1300	
Eureka	475	3257	3116
Fresno (AP)	370	2080	1906
Los Angeles	228	1085	891
Los Angeles (AP)	312	1411	
Mt. Shasta	745	4064	
Oakland (AP)	411	2249	
Red Bluff (AP)	422	2205	2066
Sacramento	370	2032	2030
Sacramento (AP)	414	2266	
Sandberg	509	2775	
San Diego (AP)	258	1107	1027
San Francisco	360	2252	2096
San Francisco (AP)	420	2462	
San Jose	370	1850	
Santa Maria (AP)	349	2161	
COLORADO			
Denver	681	3598	4194
Denver (AP)	732	3915	
Grand Junction (AP)	854	4330	
Pueblo (AP)	704	3675	4164
CONNECTICUT			
Bridgeport (AP)	995	3705	
Hartford (AP)	1068	4149	4470
New Haven (AP)	994	3841	4250
DELAWARE			
Wilmington (AP)	872	3295	
DIST.OF COLUMBIA			
Washington	732	2636	3482
Washington (AP)	730	2683	
FLORIDA			
Apalachicola	120	554	1053
Daytona Beach (AP)	110	370	
Fort Myers	40	130	
Jacksonville	114	496	1009
Jacksonville (AP)	133	574	
Key West	0	4	52
Key West (AP)	3	8	
Melbourne (AP)	56	180	
Miami	17	50	154
Miami Beach *	6	20	
Int. Airport, Hialeah	15	47	
Orlando (AP)	66	240	
Pensacola	152	641	1076
Tallahassee (AP)	169	668	
Tampa (AP)	64	214	498
West Palm Beach (AP)	14	49	
GEORGIA			
Atlanta	402	1815	2399
Atlanta (AP)	394	1771	
Athens (AP)	426	1982	
Augusta (AP)	315	1311	1911
Columbus	304	1342	
Macon (AP)	281	1274	
Savannah (AP)	222	917	1369
Valdosta (AP)	194	790	
IDAHO			
Boise (AP)	827	4384	4206
Lewiston (AP)	843	4541	
Pocatello (AP)	968	4971	4892
ILLINOIS			
Cairo	629	2574	3149
Chicago	1012	4014	4564
Chicago (AP)	1078	4388	
Chicago University	1040	4153	
Moline (AP)	1126	4576	
Peoria (AP)	1061	4266	4572
Springfield	907	3620	4202
Springfield (AP)	963	3940	
INDIANA			
Evansville (AP)	737	3053	3449
Ft. Wayne (AP)	1052	4244	4606
Indianapolis	895	3499	4135
Indianapolis (AP)	927	3741	
South Bend (AP)	1103	4434	
Terre Haute (AP)	896	3638	
IOWA			
Burlington (AP)	1062	4420	
Charles City	1263	5509	5760
Davenport	1092	4405	4769
Des Moines	1145	4700	4886
Des Moines (AP)	1168	4825	
Dubuque	1159	4874	5167
Keokuk	987	4123	4351
Sioux City (AP)	1222	5295	5269
KANSAS			
Concordia	854	3928	4188
Dodge City (AP)	714	3549	3891
Goodland (AP)	796	4177	
Topeka	801	3628	3961
Topeka (AP)	834	3805	
Wichita (AP)	710	3339	3638
KENTUCKY			
Lexington (AP)	751	3074	3653
Louisville	720	2859	3430
Louisville (AP)	720	2882	
Pikesville	585	2045	
LOUISIANA			
Baton Rouge (AP)	175	813	1288
Lake Charles (AP)	148	764	
New Orleans	124	540	1042
New Orleans (AP)	134	571	
Int.Airport,Moisant	152	640	
Shreveport (AP)	298	1368	1802
MAINE			
Caribou (AP)	1590	6833	
Eastport	1262	5124	5756
Greenville	1551	6612	6684
Portland (AP)	1301	5116	5197
MARYLAND			
Baltimore	765	2688	3400
Baltimore (AP)	778	2826	
Bethesda *	816	3056	
District Heights *	770	2851	
Frederick	809	3073	
Riverdale *	766	2988	
Takoma Park *	777	2936	3695
MASSACHUSETTS			
Boston (AP)	1029	3767	4246
Nantucket (AP)	931	3553	3903
Pittsfield	1245	5051	
Wilton	1139	4264	
MICHIGAN			
Alpena	1216	5252	5736
Detroit (AP)	1070	4310	4758
Escanaba	1318	5819	6103
Grand Rapids	1078	4382	4869
Grand Rapids (AP)	1146	4694	
Iron Mountain	1377	6221	
Lansing (AP)	1146	4758	
Marquette	1271	5834	6044
Muskegon (AP)	1137	4701	
Sault Ste.Marie (AP)	1424	6333	6488
Traverse City (AP)	1230	5253	
Ypsilanti (AP)	1090	4408	
MINNESOTA			
Duluth	1389	6796	6916
Duluth (AP)	1468	7208	
International Falls	1616	8030	
Minneapolis (AP)	1356	5977	
St. Cloud (AP)	1480	6742	6592
St. Paul (AP)	1365	5974	
MISSISSIPPI			
Jackson (AP)	271	1240	
Meridian (AP)	287	1339	1931
Vicksburg	282	1205	1741
MISSOURI			
Columbia	800	3421	3944
Columbia (AP)	834	3628	
Kansas City (AP)	821	3500	3869
St. Joseph (AP)	908	3992	
St. Louis	771	3066	3590
St. Louis (AP)	779	3199	
Springfield (AP)	719	3250	3550
MONTANA			
Billings (AP)	865	5494	5314
Butte (AP)	1167	6730	
Glasgow	1433	7328	
Great Falls (AP)	826	5860	
Havre	1298	6947	6226
Helena	952	6256	5696
Kalispell	1062	6262	5813
Miles City (AP)	1214	6359	5693
Missoula (AP)	1086	5906	5533
NEBRASKA			
Grand Island (AP)	1034	4691	
Lincoln	1005	4406	4590
Lincoln (AP)	1049	4615	
Norfolk (AP)	1199	5232	
North Platte	863	4547	4782
North Platte (AP)	935	4700	
Omaha (AP)	1101	4640	4694
Valentine	1046	5252	5311
NEVADA			
Ely (AP)	889	5218	
Reno (AP)	724	4214	4027
Tonopah	671	3924	4173
Winnemucca	796	4522	4618
Las Vegas	368	2104	2211
NEW HAMPSHIRE			
Concord (AP)	1292	5188	5362
Mt. Washington	1754	9103	
NEW JERSEY			
Atlantic City	774	2840	3535
Newark (AP)	931	3368	4067
Trenton	905	3301	3888
NEW MEXICO			
Albuquerque (AP)	560	3085	3507
Clayton (AP)	655	3309	
Roswell (AP)	461	2518	2868
NEW YORK			
Albany	1241	4788	
Bear Mountain	1193	4602	
Binghamton	1092	4306	4943
Binghamton (AP)	1128	4570	
Buffalo (AP)	1117	4324	4824
Canton	1383	5455	6024
New York	893	3085	3842
Intern'l Airport	916	3300	
La Guardia Field	904	3590	
Oswego	1140	4438	
Rochester (AP)	1132	4493	4847
Schenectady	1216	4851	
Syracuse (AP)	1187	4505	4957
NORTH CAROLINA			
Asheville	585	2535	3234
Asheville (AP)	590	2731	
Charlotte	462	1951	2570
Charlotte (AP)	504	2106	
Greensboro (AP)	628	2531	
Hatteras	347	1249	1935
Raleigh	515	1941	2584
Raleigh (AP)	556	2191	
Wilmington	339	1329	1931
Winston-Salem (AP)	613	2448	
NORTH DAKOTA			
Bismarck (AP)	1599	7366	6664
Devils Lake	1696	7996	7483
Fargo (AP)	1652	7398	
Grand Forks	1734	7826	7373
Pembina (AP)	1839	8398	
Williston	1450	7339	6906
OHIO			
Akron (AP)	1013	4195	
Cincinnati	759	2928	3807
Cincinnati (AP)	828	3370	
Cleveland	963	3684	4407
Cleveland (AP)	996	3943	
Columbus	882	3464	4135
Columbus (AP)	893	3636	
Dayton (AP)	932	3789	4058
Sandusky	966	3737	4423
Toledo (AP)	1047	4223	4575
Youngstown (AP)	1034	4143	
OKLAHOMA			
Oklahoma City	530	2580	2952
Oklahoma City (AP)	546	2660	
Tulsa (AP)	572	2701	
OREGON			
Baker	940	5134	5134
Baker (AP)	953	5536	
Burns	1008	5224	
Eugene (AP)	662	3685	
Meacham	975	5547	
Medford (AP)	636	3580	3410
Pendleton (AP)	894	4455	
Portland	640	3338	3107
Portland (AP)	727	3770	
Roseburg	539	3107	3048
Salem (AP)	657	3655	
Troutdale	748	3793	
PENNSYLVANIA			
Allentown (AP)	996	3920	
Curwensville	1143	4842	
Erie	1003	3809	4498
Harrisburg (AP)	918	3572	4061
Park Place	1139	4625	
Philadelphia	849	2949	3544
Philadelphia (AP)	868	3123	
Pittsburgh	858	3327	3979
Pittsburgh (AP)	908	3599	4231
Reading	895	3345	3906
Scranton	1028	4024	4569
Williamsport (AP)	997	4109	4511
RHODE ISLAND			
Block Island	931	3315	3942
Providence	1016	3708	4302
Providence (AP)	1047	3956	
SOUTH CAROLINA			
Charleston	234	969	1537
Charleston (AP)	279	1165	
Columbia	347	1473	2038
Columbia (AP)	383	1561	
Greenville (AP)	466	2096	2436
Spartanburg	469	2077	
SOUTH DAKOTA			
Huron (AP)	1360	6167	5987
Pierre (AP)	1346	5968	5506
Rapid City (AP)	976	5359	5170
Sioux Falls (AP)	1258	5927	
TENNESSEE			
Bristol (AP)	618	2624	
Chattanooga	412	1801	
Chattanooga (AP)	479	2112	2601
Knoxville (AP)	526	2288	2903
Memphis (AP)	488	2099	2513
Nashville (AP)	582	2433	2870
TEXAS			
Abilene (AP)	340	1751	2143
Amarillo (AP)	526	2802	3248
Austin (AP)	261	1102	1443
Big Spring (AP)	331	1771	
Brownsville (AP)	36	222	551
Corpus Christi (AP)	87	397	854
Dallas (AP)	334	1624	1980
Del Rio (AP)	168	794	1328
TEXAS (Cont.)			
El Paso (AP)	320	1873	2122
Ft. Worth (AP)	335	1681	1971
Galveston	88	488	1016
Galveston (AP)	92	484	
Houston	131	647	
Houston (AP)	139	681	1127
Laredo	93	409	
Lubbock	479	2479	
Palestine	267	1244	1741
Port Arthur	115	639	1162
Port Arthur (AP)	152	792	
San Angelo (AP)	307	1534	
San Antonio (AP)	228	916	1246
Wichita Falls (AP)	411	2063	
Waco (AP)	302	1389	
UTAH			
Milford	805	4735	
Salt Lake City	757	3896	4171
Salt Lake City(AP)	805	4268	4472
VERMONT			
Burlington (AP)	1338	5215	5801
VIRGINIA			
Alex.Epis. H.S. *	756	2693	
Cape Henry	536	1912	2619
Falls Church *	782	2766	
Lynchburg (AP)	705	2743	3151
Norfolk	543	1857	2560
Norfolk (AP)	575	2061	
Potomac Yards	724	2494	
Richmond	645	2331	3026
Richmond (AP)	676	2524	
Roanoke (AP)	686	2761	
Urbana	660	2393	
WASHINGTON			
Ellensburg (AP)	1091	5576	
Kelso	715	4020	
North Head	626	3719	3512
Olympia (AP)	708	4207	
Port Angeles	689	4413	
Seattle	604	3512	3325
Seattle (AP)	632	3728	
Spokane (AP)	980	5458	4669
Stampede Pass	1133	6794	
Stevenson	882	4238	
Tacoma	638	3738	3488
Tatoosh Island	663	4275	3873
Walla Walla	841	4151	3743
Yakima (AP)	991	4951	4334
WEST VIRGINIA			
Elkins (AP)	856	3710	4261
Huntington (AP)	664	2615	
Parkersburg	769	3122	3752
WISCONSIN			
Green Bay	1346	5818	5768
La Crosse	1236	5304	5616
La Crosse (AP)	1370	5821	
Madison	1223	5150	5475
Madison (AP)	1226	5299	
Milwaukee	1119	4799	5060
Milwaukee (AP)	1144	4877	
WYOMING			
Casper (AP)	596	5286	
Cheyenne (AP)	870	4820	5195
Lander (AP)	930	5430	6003
Rock Springs	1118	5460	
Rock Springs (AP)	1179	5788	
Sheridan (AP)	1025	5664	
ALASKA			
Anchorage (AP)	1607	8422	
Annette Island (AP)	823	5372	
Barrow	2496	12364	
Bethel (AP)	1922	8775	
Cordova	1253	7283	
Fairbanks	2456	10571	
Galena	2376	10502	
Gambell	1515	8515	
Juneau (AP)	1160	6945	
Kotzebue (AP)	2136	10002	
Northway (AP)	2475	11662	
Yakutat (AP)	1088	6874	
St. Paul Island (AP)	1187	6867	

The "base" for computing heating degree days is a mean daily outdoor temperature of 65°. Heating degree days are obtained by subtracting the mean daily temperature from this base, i.e.,a mean daily temperature of 53° makes 12 heating degree days. If the mean daily outdoor temperature is equal to or greater than 65°, there are no heating degree days. Fuel requirements are related to heating degree days; therefore, a comparison of the accumulated current heating degree days with the long period averages should show, in general, whether fuel requirements have been above or below normal.

* Data from cooperative stations.

SEVERE STORMS

Table 4 — FEBRUARY 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Wichita Falls to Paris, and southward to Dallas and Fort Worth, Tex.	Jan. 30 to Feb. 1								Ice (glaze)	Although not covering as extensive an area as ice storm of January, 1949, this year's storm is considered by many to be more damaging than last year's. Worst damage seemed centered around Bonham in Fannin County. At least 54 cities without telephone communications. Celeste, Muenster, and Leonard cut off from water supplies on account of power failure. Much damage intangible. Severe damage to trees.
Arkansas, northern portion	1								do	Considerable damage to fences and some farm outbuildings. Heavy damage to orchards, shade trees, shrubbery, and to telephone and electric lines. Some lines down 3 or 4 days. Telephone company estimates damage at $250,000. Power company damage also heavy. Storm worst in Independence, Izard, Stone, White, and Boone Counties and in some other parts of northern and north-central Arkansas. Continuation of glaze storm of January.
West Virginia, western and central counties.	1-3				4				Rains	Heavy rains began January 31 and continued to February 3. Most streams flooded locally; many highways temporarily closed; many cities and towns partially flooded; many schools closed temporarily by impassable roads.
Russian River Valley, Calif.	4,5,6								Rains and flood	U. S. Engineers estimated losses from high waters at $105,000. Major portion of losses to agriculture and livestock; also considerable losses due to traffic interruptions and erosion of banks, and some losses to low lying resort properties.
Sacramento River Valley, Calif.	4-7						*$30,000	*	do	About 2,900 acres of Little Holland tract inundated. Property damage due to local flash flooding in area between Duck and Littlejohn Creeks southeast of Stockton, where approximately 140 residences flooded to a depth of seven inches to 2 feet. Crop loss due to flooding of approximately 3,500 acres of barley.
Decatur, Ala.	6	11:45p.m.	†2				50,000		Hail	Hail lasted about 5 minutes, with stones up to size of hen eggs. Damage mainly to roofs, greenhouses, neon signs, and windows. Storm moved southeastward.
Salt Lake City and immediate vicinity, Utah	6-7	5p.m.6th to 9a.m. 7th							Rains	Heaviest shower at 8:15 p.m. and new intensity records for all intervals established not only for February but for any winter month. A total of 1.43 inches recorded during storm with 1.06 inches at Airport 4 miles west, and 1.93 inches at the University 2-1/2 miles east of Post Office, the apparent center of storm. Amounts dropped off sharply a few miles from Salt Lake area. Damage in excess of several hundred thousand dollars. The new intensity records at Weather Bureau Office as follows: 5 min. -.13 inch; 10 min. -.22; 15 min. -.28; 30 min. -.35; 1 hr. -.50; 2 hrs. -.65; 24 hrs. -1.43.
New Holland area Logan County, Ill.	8	6 p.m.					2,000		Electrical	Barn damaged and 2 cows killed by lightning: several telephone and power lines knocked out.
Louisville, Ky.	8	p.m.					7,000		Wind, rain, and electric	Heavy rains caused flooding of several homes. Lightning set fire to one house and knocked three electric power lines out of operation. Winds caused an estimated damage of $2,000.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Red Boiling Springs, Macon County, Tenn.	8	During night					$5,000		Electrical	Barn and contents destroyed by lightning.
East St. Louis, Ill.	9	6 a.m.					3,250		do	Large barn damaged by lightning.
Nashville, Tenn.	9	Early morning							Electrical and rain	Some damage to a few power transformers. Streets and basements flooded.
Blevins, Ark.	9						10,000		Electrical	Church completely destroyed by fire caused by lightning.
Alvin, Brazoria County, Tex.	11	1:10 p.m.	400		0		50,000		Tornado	Seven buildings damaged, three others destroyed.
LaPorte, Harris County, Tex.	11	1:50 p.m.	1,000		1	6	20,000		do	
Tyler, Smith County, Tex.	11	9 p.m.	100		0	5	100,000		do	Struck Chappell Hill Community, 7 miles east of Tyler. 16 buildings damaged.
Hughes Springs, Cass County, Tex.	11	11:55p.m.	80		0	6	100,000		do	Six homes demolished, 20 damaged.
Corley, Bowie County, Tex.	12	12:30a.m.	880		1	8	40,000		do	Five homes destroyed. 10 damaged.
Dublin, Erath County, Tex.	12	1:15 a.m.	250		0		20,000		do	Five buildings destroyed
Groesbeck, Limestone County, Tex.	12	6:10 a.m.	100		0		25,000		do	Several cars, garages, and homes damaged.
Haslam, Shelby County, Tex.	12	11:57a.m.	100		0	32	205,000		do	Several homes destroyed and several hundred chickens killed.
Center, Shelby County, Tex.	12	12 noon	50		3	15	51,500		do	Buildings damaged in Jericho and Fellowship Communities near Center.
Cane Creek Community (12 miles north of Sheridan,) Ark.	12	12:30p.m.	100		0		450		Tornado and hail	One house roof destroyed; one chicken house blown away. Approximately 2 acres of timber blown down. One barn and outhouse blown away.
Shreveport (near) La.	12	1:05 p.m.			13	115			Tornado	Tornado entered Louisiana from Texas near Logansport, passed over Slack Airbase in Shreveport and to Mt. Holly, Ark. at 3 p.m. Radar fix indicated movement north-northeastward at 35 m.p.h. Destruction heavy, but estimates not vet available.
Curtis-Haynesville, La.	12	1:40 p.m.			3	10			do	Started a few miles east of path of first tornado listed above but some 35 minutes later. Moved on nearly parallel path, but much of it over uninhabited areas. Considerable damage.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Mt. Holly, Ark.	12	3 p.m.	100		0		$20,000		Tornado	Two houses destroyed, and 1 damaged; several barns and outhouses blown down. Power lines blown down. Store 5 miles north of Mt. Holly slightly damaged. Heavy winds struck small oil field south of Mt. Holly, toppling two derricks.
Zwolle-Castor-Gibsland, La.	12	3 p.m.			9	35			do	Passed over Castor, La. at 3 p.m. about midway of path. Considerable damage.
Port Arthur, Tex.	12	3:30 p.m.	50		0	1	8,100		do	One home demolished, seven damaged in Lake Lovell-LaBelle area 15 miles west-northwest of Port Arthur.
Winnsboro, La.	12	Early evening							Wind and hail	Slight damage.
East Carroll Parish (southern portion), La.	12	11 p.m.			0				Tornado	Several buildings damaged.
Indiana, northern one-third	12-13	p.m. of 12th thru most of 13th.							Ice (glaze)	Damage estimated at $70,000 to $100,000 for Fort Wayne alone. Many traffic accidents; broken telephone, telegraph and some power lines. Among localities affected were Wabash, Ft. Wayne, and Monticello.
Marietta, Cass County, Tex.	13	12:30a.m.	100				2,000		Wind	Damage to two houses and barns.
Rosemark, Tenn.	13	1 a.m.			0	8	2,000		Probable tornado	Demolished several outhouses and heavily damaged two farm houses. Slightly injured occupants of one home.
Hurricane Hill, (near Ripley), Tenn.	13	2 a.m.			9	1	5,000		do	Two dwellings destroyed; slight damage to a few other buildings.
Illinois, northern third	13	All day			2		3,500,000		Ice	Freezing rain, accompanied by strong winds, caused heavy damage to utilities and trees, Chicago area being hit hardest. Electric and telephone services to thousands of homes around Chicago disrupted. The two deaths caused by accidents were due to icy conditions.
Pushmataha (1 1/2 miles east), Choctaw County, Ala.	13	6 p.m.					3,000		Thundersquall	Three houses damaged, one being blown down. Several trees uprooted.
Erie and Crawford Counties, Pa.	13-14								Snow, rain and winds	Two inches of wet snow followed by general steady rains caused streams to rise to bank-full levels and caused some local flooding. French Creek over-flowed Route 6N near Mill Village causing it to be blocked off over night, and also over-flowed Route 89 between Union City and Wattsburg. In Erie clogged street sewers caused water to back up for several blocks to hub depth.

SEVERE STORMS

Table 4—Continued

FEBRUARY 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Center and Clearfield Counties, northwestward to Warren and McKean Counties Pa.	13-15						*$3,000,000	*	Ice(glaze) and winds	Glaze formation in northwestern mountains was heaviest above 1400-foot level from Juniata County to southern Elk County; above 1600 feet in northern McKean County; 1800 feet in northern Elk County, and 1900 feet in much of Alleghany National Forest. Higher elevations reported ice thickness up to 2 inches in diameter on wires and 2 inches thick on poles with icicles 5 to 8 inches long. This tremendous ice accumulation resulted in greatest damage on record in many areas in Cameron, Elk, Warren, and McKean Counties. A conservative estimate of damage in 20 mile radius of Glen Hazel was $500,000. In Alleghany National Forest, 50,000 to 70,000 acres of trees seriously damaged by ice accumulation, with some of worst damage in area from Sheffield to Hearts Content. Many orchards completely wiped out by ice. Miles of highways repeatedly blocked by periodic falling of trees and communication lines. Home Home Telephone Company reported 1500 phones out of service and that 200 miles of wire will have to be restrung. James City Water System out for 5 days, due to power failure. West Penn Power System suffered damage greater than St. Patrick's day storm of 1936. Bell Telephone Company of Pa., Baltimore & Ohio Railroads, and Western Union Telegraph Company reported general and extensive damage to communication lines. In Center County rain-saturated ground resulted in local rock slides which cluttered highways.
Center and Potter Counties, eastward to Delaware River, Pa.	13-16								Sleet, snow and winds	Five to 13 inches of heavy snow mixed with sleet temporarily blocked highways. High winds on 14th drifted snow 6 feet deep in Luzerne and Lackawanna Counties and hampered snow removal crews in other sections. Thirty-five motorists marooned over night of 14th at Finch Hill, 20 miles from Scranton. Plows made repeated efforts to open these roads during evening, but high winds nullified their efforts. At least one school closed due to snow-blocked highways. At one time during this storm in Center County alone, 107 men and 47 plows battled to keep highways open.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Berks and northern Dauphin Counties to Luzerne, Carbon and Lackawanna Counties, Pa.	13-16				2	5	$500,000		Ice(glaze) and winds	Heavy glaze storm did greatest damage in area from Shamokin and Pine Grove northeastward to Mauch Chunk and a point about 15 miles north of Hazelton. In this approximately 1500 square mile area, Pa. Power and Light Company reported an estimated damage to power and communication lines of $370,000. This area has average elevation of 1600 feet. Most glazing began between 700 and 1000-foot levels becoming progressively worse at higher levels. Heaviest local damage in Pottsville area where trees, wires, and buildings damaged by ice. All 5 circuits of fire-alarm system in Pottsville knocked out by falling trees. Court House clock stopped at 7:45 due to weight of ice on hands. Heavy damage also in Boyertown area and in section from Strausstown to Moslem Springs northward to Orwigsburg and New Ringgold. In upper Dauphin County, power was cut to 900 subscribers due to fallen or broken wires, and in Orwigsburg area 865 homes without power. Leesburg Telephone Company reported 15 percent of its lines down. In Reading area, high winds ripped tin roofs from at least 3 homes. Water-soaked hillsides resulted in rock slide between Port Clinton and Hamburg which blocked highway. Metropolitan Edison Company crews reported ice 1-1/2 inches thick on lines and poles and icicles 4 to 5 inches long. In Schuylkill County, three boys injured when struck by falling branches and one man crushed to death when a flag pole fell on him while he was working at a colliery near Tremont. Lineman killed while repairing power lines at Freemansburg. At least two others injured in auto accidents resulting from ice-coated highways. More than 6000 hard coal miners idle because of power shortages.
All New England States	14-15	Midnight 14- Midnight 15							"Northeaster"	Most severe storm of season to date, both as to rain, snow and gales. Five to 14 inches of snow fell over all, except immediate coastal areas where rain predominated. Gales along coast attained extreme speed of 61 m.p.h. In Fall River, Mass., 80-foot long building unroofed; other local wind damage. Rain and slush flooding conduits cut off power in some cities. Heavy surf battered coast.
West Virginia, central elevated counties	16-20								Snows	Average of 6 to 10 inches of snowfall caused hazardous driving conditions.
Rhode Island and eastern Massachusetts	20	9 a.m., 6 p.m.							Northwest gales	Gusts of 51 to 73 m.p.h. did considerable damage to trees, signs, and power lines.
Hurdle's Corner, Norfolk County Va.	23	8:25 - 8:35 a.m.					1,000		Line squall	One garage and a barn of old wooden construction blown down; a mule killed in barn destruction. Chimney of one house blown down.
Camden, Pasqoutank and Martin Counties N.C.	23	8-8:30 a.m.							Wind	Small trees and garages blown down. A few roofs and chimneys removed. At least one barn destroyed.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Harrisburg to Easton, Pa.	23				2	5			Ice (glaze)	Many schools in Dauphin and Lancaster Counties closed due to icy roads. A Dauphin County truck driver killed when he leaped from a trailer truck after it jack-knifed on ice-covered hill near Easton. Three trailer-trucks collided 15 miles east of Harrisburg, resulting in the burning of one truck. Woman killed just south of Lancaster when her car skidded on icy highway and crashed into guard rail.
Erie, Crawford, Warren and McKean Counties, Pa.	23-24								Snow, sleet, rain, and ice (glaze).	Snow and sleet followed by freezing rain produced 1/2 to 1 inch thick coatings on cars and roads, making travel extremely hazardous. Storm most severe in Erie County and spotty in Crawford, Warren, and McKean Counties. Greyhound Bus service running 2 hours behind schedule due to ice-coated roads.
Tuscaloosa County, northeastern portion, Ala.	25	4 p.m.	†10				*$10,000	*	Hail	Plane pilot reported hail whitened ground over area 10 miles by 30 miles in East Brookwood and Brookwood section, but area appears large for hail producing part of thunderstorm. A few stones up to 2 inches in diameter were found. Damage mostly to fruit trees and shrubbery, with some deterioration of roofs. Storm moved east-southeastward.
Talladega Springs (13 miles west of Sylacauga), Talladega County, Ala.	25	4:10-4:30 p.m.	880				3,000		do	Stones size of marbles; drifted several inches deep in low places. Storm moved south-southeastward.
Clanton to north of Montgomery, Ala.	25	5-8:30p.m.	†2				30,000		do	Thunderstorm, with light hail, first reported at Clanton. It moved slowly south-southeastward and dissipated in northeast suburbs of Montgomery, where light hail also reported. No precipitation in downtown Montgomery, although thunder was heard. Hail heavy at Marbury and Verbena, and likely for some distance southward toward Montgomery. Stones up to 1 inch in diameter fell at Verbena; size of marbles at Marbury. Damage mostly to roofs, gardens, and windows. Highway traffic on Montgomery-Birmingham highway slowed for about an hour by ice on pavement.
Port Angeles, (near) Wash.	25	10:45p.m.					4,000		Flash flood	Following a continued 2-day rainstorm with high winds in Straits of Juan de Fuca, a dam of earth at Lake Dawn, south and east of Port Angeles caused a flash flood when dam gave way. A wall of water coming down Ennis Creek valley after break struck eastern outskirts of Port Angeles without warning. At that point a frame house was swept from its foundation and broken to pieces against pier of a bridge. Much driftwood, sand and boulders carried into yards of nearby homes by flood which also uprooted trees and caused further trouble from breaks in high-tension electrical lines.
Granger, Wyo.	26								Flood	Slight damage to ranch property when ice jammed in Black Fork River.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Oklahoma City (near), Okla.	27	8:20 p.m.	50	2	0	0	$6,200		Tornado	A small tornado, moving north-northeastward, destroyed a large brooder house on chicken farm near Lake Hefner about 6 miles northwest of Oklahoma City. Debris showed evidence of twisting action. Roof at about a 90° angle about 50 to 150 feet north. Another chicken house1 1/2 miles farther to the north-northeast destroyed.
Marianna, Ark.	28	5 p.m.	† 5					Small	Hail	Hailstones averaged 3/4 inch in diameter, largest size 1 inch in diameter. House roofs and automobiles most seriously affected. Small dents on cars, and paint chipped away; some windshields broken. Nearly all houses in Marianna needed roofs repaired. About 300 glass windows broken in greenhouse.
Winnfield, La.	28	7:55-8p.m.	† 6						do	Hail ranged from size of marbles upward. Damage to buildings, autos, etc.

PRELIMINARY TOTALS BY STORM TYPES FOR FEBRUARY 1950

Type	Deaths	Injuries	Damage
Tornado	39	242	$ 653,250
Wind	1	3	1,758,000
Ice	5	7	5,100,000
Electrical	0	0	22,750
Hail	0	0	93,000
Rain and Flood	4	0	391,500
Total	49	252	$ 8,018,500

LATE STORM REPORTS FOR JANUARY 1950

Pahala vicinity, Island of Hawaii	Jan. 9-10								Rain	Plantation flumes and pipelines broken. Roads and streets covered with silt, and rock washed down from higher ground. Residence yards flooded.
Islandsof Hawaii and Oahu	11-12								Wind, rain, and thunderstorms	Fruit and Macademia nut trees in northern Hawaii damaged by strong winds; some uprooted; power and telephone lines damaged by falling trees in vicinity of Volcano House; some buildings damaged. On Oahu, high winds uprooted trees where ground softened due to heavy rains; electric services damaged; few airplanes (on ground) damaged.
Island of Oahu	22								Electrical and rain	Power and communication services temporarily disrupted. Some Honolulu streets flooded. Plane service between islands curtailed.

† Miles instead of yards.
* Crop damage included with other property damage.

RIVER STAGES AND FLOODS

FEBRUARY 1950

Major flooding occurred in the Ohio Basin for the second consecutive month with some of the crests along the main stem higher than in January. Flooding along the Red River in Louisiana was the greatest since 1945. The lower Mississippi River continued in flood throughout the month, with crests in the reach immediately below the mouth of the Ohio River, generally, the highest since 1937. The Atchafalaya River reached a record stage at Atchafalaya, La.

ST. LAWRENCE DRAINAGE.--Flooding along the St. Marys River at Decatur, Ind., during the month was the greatest since the gage was established at that point in 1931 and the crest of 22.4 feet is generally considered to be the highest since the flood of 1913. It was one of the few times that flood waters reached portions of the city, which is located on high ground. Crests along the Maumee River at Defiance, Napoleon and Grand Rapids, Ohio, were almost simultaneous with the crest upstream at Fort Wayne, Ind. Although the flood did not last as long as the one in the preceding month, damage was more extensive. Much agricultural damage occurred from flooding of fields that were not flooded during January. Over 100 families were forced to leave their homes throughout the St. Marys, Auglaize and Maumee areas. In Grand Rapids, Ohio, the dike is reported to have been washed away when the flood waters spread into the business district, forcing it to be closed. In Fort Wayne, Ind., the Mechanic Street dike had to be reinforced.

ATLANTIC SLOPE DRAINAGE.--The snow cover in the New England States increased substantially during February and at the close of the month ranged from 1 inch in the southern portion to over 30 inches in the northern. In the Merrimack Basin in Connecticut the average snow depth was over 25 inches, with a water equivalent of over 7 inches. In the Connecticut River Basin the snow depth was about 17 percent below normal as compared to 40 percent last year. The much below normal temperatures during the last half of the month resulted in heavy ice formation and at the close of the month there was more ice in the streams in the Merrimack Basin than at any time during the past 5 years. Only occasional floating ice was reported in the Lackawaxen, Lehigh and Susquehanna Rivers in Pennsylvania.

Minor flooding occurred in the lower Potomac and James Rivers in the beginning of the month due to heavy rains that fell over the basins during the period from Jan. 30 through Feb. 1. The precipitation averaged around 2 inches in the Potomac and James Basins. No damage resulted.

EAST GULF OF MEXICO DRAINAGE.--Stages in the lower Tombigbee River remained high during the early part of the month. A general flood resulted from the rains on the 7th, 9th, 10th, 13th and 14th. The crests were not unusually high for the season and the damages were light as the flood waters spread over territory that had only recently been inundated.

Excessive precipitation occurred over the Pascagoula and Pearl Rivers on the 13th which caused sharp rises over all the headwater streams. Serious flooding occurred in the headwater and intermediate reach of the Pearl River and in the headwaters of the Leaf, Chichasawhay and Bogue Chitto Rivers. Losses were due mostly to the cessation of work by lumber interests in the lower Pearl River swamp area.

UPPER MISSISSIPPI BASIN.--Precipitation in the upper Mississippi Basin exceeded normal by about 12 percent during the period from Nov. 1, 1949, to Feb. 15, 1950. Compared to the same period last season it was somewhat smaller. This year, however, most of the snow cover remained intact. While last year it was depleted gradually by two periods of thawing in January, especially in the southern half of Wisconsin and extreme southeastern Minnesota. Last fall was exceedingly dry with the dry period extending through November and December. Precipitation during January and February brought the total to over normal by Feb. 15. The total moisture content of the snow cover on that date shows the greatest amounts in the upper Wisconsin Valley extending in a rather wide belt northwestward over the upper Chippewa River into Douglas County and then over the upper drainage area of the St. Croix River.

The Middle River, a tributary of the Des Moines, rose above flood stage on Feb. 28 and reached a crest of 16.8 feet at 3 p.m. of that date. Overflow was confined to low agricultural land with no monetary loss. The rise was caused by the Spring breakup in tributary streams, augmented by light rainfall over the river basin. This overflow was followed by moderate overflow of the Des Moines River on Mar. 1.

Flooding continued in the lower Illinois River in Illinois from early in January through February. A moderate rise occurred in the upper reaches from the moderate precipitation, averaging .75 inch during the 24 hours ending in the morning of the 13th.

MISSOURI BASIN.--Overflow stages during the month were confined to minor local rises on the upper Republican River in the vicinity of Cambridge, Nebr. Above bank-full stages persisted during most of the month due to ice conditions. The formation of occasional small ice gorges resulted in further rises of a local nature. The principal rise on the 18th was due to a combination of more rapid runoff from melting snow and the presence of ice in the channel.

Two overflows occurred on the Grand River during the month, the first from the 8th to the 10th and the second on the 13th and 14th. During the first rise there was light flooding on the Chariton River at Novinger, Mo. Minor rises occurred on the Blackwater and Lamine Rivers in central Missouri during the second period. Rainfall averaged .5 inch over the Grand River Basin on the 8th with unofficial heavier amounts up to 2 inches in some localities, and a sudden rise in temperature, produced general 5-foot overflows on the Grand River in the Chillicothe, Mo., area and lesser overflows above and below that point. Rainfall over the Chariton Basin averaged .5 to .75 inch with more than 1 inch in the Centerville, Iowa, area. The second flooding period occurred

as a result of rainfall, sleet and snow with overflows generally from one to two feet from above Chillicothe to below Sumner, Mo., with minor rises at headwater points on the Thompson Fork, Weldon River and the small streams in northwest Missouri. A sudden rise in temperature during the last week of the month produced snow melt and thawing of ice gorges in the tributaries in southwestern Iowa resulting in light overflows on the East Nishnabotna River near Hamburg and Sydney, Iowa, and bank-full stages on the One Hundred Two, Tarkio and Nodaway Rivers in Missouri.

OHIO BASIN.--Flood stages resulted early in the month along the southern tributaries of the Ohio River with major flooding along the main stem below the mouth of the Kanawha River due to heavy rainfall between Jan. 29 and Feb. 3. The rainfall was the heaviest over eastern Kentucky, eastern Tennessee, central and southern West Virginia and southern Ohio with rainfall amounts ranging between 3 and 7 inches. The streams prior to this storm had above normal base flow with high antecedent index values from the frequent heavy rains in January, so conditions were favorable for a major flood when these heavy rains began. Additional rains on the 9th and 12-15th caused additional sharp rises that exceeded some of the January crests. Cairo, Ill., registered a high of 55.9 feet on the 15th as compared to a crest of 55.3 feet on Jan. 19. The Ohio River remained above flood stage below the mouth of the Green River most of the month and was still above flood stage at Cairo by the 28th.

The slight flooding in the Tygart Basin in West Virginia resulted from rainfall averaging 3 inches from Jan. 29 through Feb. 1. The additional rain (.7 inch) on the 2d did not cause an additional rise but slowed down the recession.

The rainfall over the Little Kanawha River averaged between 3 and 4 inches which produced crests 4 to 5 feet above flood stage throughout most of the river. Tributaries of the Ohio River between Dam 23 and Dam 30 rose sharply and exceeded flood stage along the Elk River at Clay, W. Va., the Guyandot River at Logan, W. Va., and the Levisa Fork at Pikeville, Ky. The crests on the Sandy and Guyandot Rivers were within a few feet of the maximum of record.

A crest of 26.5 feet occurred in the upper Licking River at Farmers, Ky., which was a record stage, due to rainfall. The crest of 31.1 feet that occurred in 1918 was due to an ice gorge. The Licking exceeded flood stage only slightly at Falmouth, Ky. The South Fork did not quite reach bank-full stage. The Kentucky River exceeded flood stage by 6.5 feet at Frankfort, Ky.

Crests 10-15 feet above flood stage were observed early in the month along the Green River in Kentucky from rainfall averaging 3.3 inches. Additional rain from the 12th to the 15th caused stages 2-8 feet above flood stage.

The additional rains on the 9th caused moderate rises on most of the tributaries. Flood stages resulted on the lower Scioto and near bank-full stages on the Little Miami, Whitewater and Hocking Rivers.

The highest stage since 1913 occurred in the headwaters of the Wabash River at Bluffton, Ind. The crest of 16.1 feet on the 15th was 3.9 feet below the 1913 crest of 20.0 feet. This rise to a near record stage was due to heavy rainfall that occurred between the 13th and 16th. General rises occurred along all streams in the Wabash and White River Basins from rains that averaged between 2 and 4 inches.

The floods during February were really a continuation of the ones that began in January as the lower portions of the streams remained above flood throughout the entire month of February, making it one of the longest floods on record. The Wabash remained above flood stage at Mount Carmel, Ill., from Jan. 1 through Mar. 6, a total of 65 days. The White remained above flood stage at Petersburg, Ind., from Jan. 5 through Mar. 3, a total of 59 days. Several main roads were closed again. Route 50 through Vincennes was open to the West only 2 days before it was closed by high water.

A major flood occurred over the Cumberland River Basin early in February due to heavy rain (8.2 inches) between Jan. 26 and Feb. 9. Additional rain between the 12th and 15th caused a third set of crests on the lower Cumberland with a crest of 56.3 feet at Clarksville, Tenn. The greatest damage occurred at Barbourville and Williamsburg, Ky. Over 500 houses were flooded in the Barbourville area.

In the Tennessee Basin, First Creek at Knoxville, Tenn., rose to above flood stage twice during the month. The first flood resulted from the rain of Jan. 30 and Feb. 1, and the second from heavy rain on the 9th. The rainfall during the first storm averaged 3.5 inches over the Tennessee Basin and was the heaviest over the Buck and Elk Rivers. These tributaries as well as several points immediately below the main river dams below Guntersville Dam exceeded flood stage.

WHITE, ARKANSAS AND RED BASINS.--The lower Black River and the White River below Newport, Ark., continued in flood from early in January through February and was falling slowly but was still above flood stage at the end of the month.

For the second consecutive month, Poteau, Okla., on the Poteau River, was the only station in the Arkansas Basin to reach flood stage. The flooding was minor and there were no reports of damage. The rainfall that caused this rise began about noon of the 11th and by 8 a.m. of the 12th the average between Poteau, Okla., and Wister Reservoir was about 2 inches. An additional .5 inch was reported on the morning of the 13th.

Floods in the Red Basin on the Little, Sulphur and Cypress Rivers early in February were the result of 48-hour rains averaging 2.88 inches over the Little River Basin and averaging close to 4.2 inches over the Sulphur and Cypress Basins at a time when the streams were high from the floods in January. The second, and in most instances, the more severe floods of the month were caused by excessive downpours the night of the 11th and 12th, averaging 4.1 inches over the Little Basin. The crests at Grand Ecore and Alexandria, La., on the Red were the highest since the record floods of April 1945 and the two crests on the Sulphur at Naples, Tex., were the highest since November 1946.

The principal damage was to roads in lowlands adjacent to flooded streams. In many sections highway traffic was halted almost the entire month. The Arkansas State Highway Department estimates that damage to roads, culverts and bridges amounted to several millions of dollars. Many older roads were exceptionally hard-hit. Other property damage from floods during the month was slight since the areas affected had previously been inundated by floods during January. There were 7 deaths due to drowning.

LOWER MISSISSIPPI BASIN.--Moderately heavy to heavy rains over the St. Francis Basin on the 1st and 2d, 12th and 13th and on the 22d kept the St. Francis River in flood the entire month except at Fisk, Mo., where it went below flood

stage on the 9th for a period of 4 days. The rains were the heaviest during the second period with over 4 inches being reported at Fisk, Mo., almost 5 inches at St. Francis, Ark., and over 6 inches at Deering, Mo. St. Francis rose to above flood stage on Dec. 29.

The Tallahatchie River at Swan Lake, Miss., and the Yazoo River at Yazoo City, Miss., continued in flood throughout February. These streams were beginning to level off before the heavy rains (2.3 inches) on the 11th and 12th. Much rich agricultural land was inundated and several families were driven from their homes.

The main stem of the Mississippi River continued above flood throughout February. It exceeded flood stage at Caruthersville, Mo., on Jan. 8, Memphis, Tenn., on Jan. 15 and New Orleans, La., on Jan. 24. The crests during February in the upper portion were generally the highest since 1937. The Bonnet Carre Spillway in New Orleans was opened this year for the third time to allow water from the Mississippi to reach the Gulf through Lake Ponchartrain and its approaches. Previous openings occurred in 1937 and 1945.

ATCHAFALAYA BASIN.--The Atchafalaya River remained above flood stage throughout its entire length during February. The previous record stage of 28.8 feet at Atchafalaya, La., reached last year was exceeded by 1.6 feet during February. Morgan City, La., remained high for unusually long periods. The wall along the river front was closed and the railroad underpasses were sandbagged to prevent water from entering the main part of the city.

WEST GULF OF MEXICO DRAINAGE.--General flooding occurred in the Sabine Basin from the heavy rains (3 inches) during the 2d week. De Ridder, La., reported 7.7 inches on the 13th. The upper Sabine River had started to rise before this storm from earlier rains. The overflows in the Sabine, Calcasieu and Mermentau Rivers were moderate but the crests did not approach closely any previous records. Damages were small since the flooding was confined chiefly to the lowlands along the rivers and resulted mostly from temporary loss of pasturage to local farmers. A few families were forced to leave their homes at Oakdale, La., on the Calcasieu River.

Moderate to heavy rains occurred over the Trinity Basin from Jan. 31 to Feb. 5, causing rapid rises over the upper Trinity to above flood stage. The rainfall ranged from 2 to 4.5 inches along the Elm Fork and East Fork and averaged 1.61 inches in the Trinity below Long Lake, Tex. Additional rains averaging 3.65 inches occurred in the lower basin from the 9th to the 14th. Precipitation in the Neches Basin averaged 3.85 inches during this period and resulted in a slight overflow at Evadale, Tex., from the 14th and continuing at the end of the month, with a crest of 17.6 feet on the 22d. Little damage resulted from the flooding but there was considerable loss of income and wages due to suspension of activities in the South Liberty oil field.

PACIFIC COAST DRAINAGE.--A moderate flood occurred on the Russian River on Feb. 4 and 5 due to heavy rains over the lower reaches of the basin on those dates. The total rainfall from the 4th to the 6th averaged 7.5 inches near Guerneville and Healdsburg, Calif., and about 4.5 inches near the headwaters.

A moderate rise occurred in the Sacramento, American and San Joaquin Rivers in California from the 4th through the 7th. Some local flooding occurred from overflowing creeks east of Red Bluff, Calif., but no damage was reported. Overflow occurred at Tisdale and Colusa Weirs into Suter Bypass and from Fremont Weir into Yolo Bypass from the 6th to the 11th. A stage of 15.8 feet was reached at Lisbon, Calif., in the Yolo Bypass on the evening of the 8th, inundating 2,900 acres of Little Holland tract. Local flash flooding occurred in the area between Duck and Littlejohn Creeks southeast of Stockton, Calif., and approximately 140 residences were flooded to a depth of 7 inches to 2 feet.

Minor flooding occurred in the Willamette Basin in Oregon from the 24th to the 28th due to moderate rainfall and snow melt. Local flooding occurred in the Umatilla River drainage during the same period.

Light flooding occurred in Washington along the Chehalis, Skookumchuck and Snoqualmie Rivers during the latter part of the month, from the heavy rains during the 24-hour period ending in the morning of the 24th.

FLOOD STAGE REPORT

(All dates in February unless otherwise specified)

Table 5

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			Ft.	
ST. LAWRENCE DRAINAGE					
Lake Erie					
St. Marys: Decatur, Ind.	13	14	20	22.4	15
St. Joseph: Montpelier, Ohio	10	15	19	12.7	16
Maumee:					
Fort Wayne, Ind.	15	14	20	21.15	16
Defiance, Ohio	10	15	18	17.45	16
Napoleon, Ohio	10	15	18	16.0	16
Grand Rapids, Ohio	15	15	--	17.5	15,16
Sandusky:					
Upper Sandusky, Ohio	13	14	15	14.5	15
Tiffin, Ohio	7	15	16	7.8	16
ATLANTIC SLOPE DRAINAGE					
Potomac: Washington (near), D.C.	10	3	3	10.0	3
James:					
Bremo Bluff, Va.	19	3	4	19.4	3
Columbia, Va.	18	3	4	19.1	3
State Farm, Va.	12	4	4	13.0	4
EAST GULF OF MEXICO DRAINAGE					
Tombigbee:					
Aberdeen, Miss.	34	15	20	40.2	17
Columbus, Miss.	29	15	20	33.7	17
Gainesville, Ala.	36	14	†	47.6	23
Lock No. 4, Demopolis, Ala.	39	6	†	50.2	20
Lock No. 3	33	Jan. 8	1	57.6	Jan. 19
		5	†	51.8	20
Lock No. 2	46	11	†	53.0	26
Lock N 1	31	Jan. 11	2	38.6	Jan. 24
		10	†	35.8	24-28
Leaf:					
Hattiesburg, Miss.	22.5	15	18	26.2	16
Beaumont, Miss.	20	15	21	25.7	18
Chickasawhay: Enterprise, Miss.	20	14	17	28.5	16
Pascagoula: Merrill, Miss.	22	18	23	23.3	19
Bogue Chitto: Franklinton, La.	11	14	17	13.8	15
Pearl:					
Edinburg, Miss.	20	14	21	26.2	16
Goshen Springs, Miss.	20	14	25	25.8	19
Jackson, Miss.	18	3	†	33.7	21
Monticello, Miss.	15	10	†	23.8	26
Columbia, Miss.	17	13	†	23.0	28
Bogalusa, La.	15	Jan. 7	†	20.4	Jan. 14
				19.6	15-16,19-20
Pearl River, La.	12	Jan. 10	†	16.3	Jan. 16
				16.5	17
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Rock: Moline, Ill.	10	Jan. 27	7	10.9	Jan. 31
		11	11	10.1	11
Middle: Indianola, Iowa	15.5	28	28	16.8	28
Illinois:					
Peru, Ill.	17	16	18	17.3	17
Havana, Ill.	14	Jan. 4	†	14.2	Jan. 5
				16.7	Jan. 21
				17.3	Jan. 30
				15.2	23
Beardstown, Ill.	14	Jan. 2	†	14.7	Jan. 6
				18.7	Jan. 21
				19.1	Jan. 30
				16.4	24
Missouri Basin					
Republican: Cambridge, Nebr.	5	Jan. 24	23	5.2	Jan. 29
				6.0	13
				7.3	18
Grand:					
Chillicothe, Mo.	18	8	9	23.3	9
		13	14	20.85	13

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft.	
Missouri Basin (Cont'd)					
Grand (Cont'd):					
Sumner, Mo.	25	9	9	26.6	9
		13	14	26.8	14
Chariton: Novinger, Mo.	20	10	10	20.2	10
Ohio Basin					
Tygart:					
Dailey, W. Va.	9	Jan. 31	2	10.5	1
Belington, W. Va.	14	1	1	14.0	1
Phillippi, W. Va.	17	1	2	18.4	1
Elk: Clay, W. Va.	18	1	1	19.2	1
Guyandot: Branchland, W. Va.	35	1	3	37.4	2
Levisa Fork: Pikeville, Ky.	35	2	2	37.4	2
Big Sandy: Louisa, Ky.	45	2	4	47.3	3
Olentangy: Delaware, Ohio	9	14	16	10.5	14
Paint Creek: Bourneville, Ohio	10	2	2	10.2	2
		9	9	14.3	9
		14	15	12.4	14
Scioto:					
La Rue, Ohio	11	10	10	11.3	10
Prospect, Ohio	10	15	17	13.2	16
Circleville, Ohio	14	15	18	19.1	15
Chillicothe, Ohio	16	15	17	20.2	16
Piketon, Ohio	15	10	11	18.5	10
		14	18	21.5	17
Licking:					
Farmers, Ky.	25	1	1	26.4	1
Falmouth, Ky.	28	2	2	28.6	2
Whitewater: Brookville, Ind.	20	14	14	21.0	14
North Fork Kentucky: Jackson, Ky.	29	2	2	33.5	2
Kentucky: Lock No.4, Frankfort, Ky.	31	2	2	37.5	2
Salt: Boston, Ky.	36	Jan. 31	5	46.0	2
Barren: Bowling Green, Ky.	28	1	5	36.8	3
		15	16	29.9	16
Rough: Dundee, Ky.	25	1	6	28.1	2
		13	19	27.9	16
Green:					
Munfordville, Ky.	28	1	5	40.6	3
Lock No.6, Brownsville, Ky.	28	1	7	42.8	4
		15	16	28.9	15
Lock No. 4, Woodbury, Ky.	33	1	20	47.7	4
				41.6	16
Lock No. 2, Rumsey, Ky.	34	1	†	45.7	14
West Fork:					
Muncie, Ind.	--	--	-	11.0	14
Anderson, Ind.	10	10	10	10.1	10
		14	16	18.3	15
Noblesville, Ind.	14	14	16	17.7	15
Indianapolis, Ind.	12	15	16	13.0	16
Spencer, Ind.	--	--	--	21.0	15
Elliston, Ind.	18	Jan. 25	2	26.8	Jan. 29
		13	26	27.2	16
Newberry, Ind.	--	--	--	21.3	17
Edwardsport, Ind.	12	Jan. 4	†	26.3	Jan. 8
East Fork:					
Columbus, Ind.	--	--	-	14.0	15
Seymour, Ind.	14	9	10	15.6	9
		14	18	18.7	15
Bedford, Ind.	--	--	--	31.4	17
Williams, Ind.	10	Jan. 29	1	12.8	Jan. 31
		14	22	20.0	18
Shoals, Ind.	25	17	22	31.0	18
White:					
Petersburg, Ind.	16	Jan. 5	†	26.4	11
Hazelton, Ind.	16		-	29.8	Jan. 12
				27.2	20,22

FLOOD STAGE REPORT

(All dates in February unless otherwise specified)

Table 5-Continued

FEBRUARY 1950

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			Ft.	
MISSISSIPPI SYSTEM (Cont'd.)					
Ohio Basin (Cont'd.)					
Wabash:					
Bluffton, Ind.	10	14	18	16.1	15
Wabash, Ind.	12	10 14	10 19	13.3 21.4	10 15
Peru, Ind.	20	15	16	21.2	15,16
La Fayette, Ind.	11	Jan. 25 10	1 22	20.9 22.5	Jan.27,28 16
Covington, Ind.	16	Jan. 26 11	3 22	24.6 26.0	Jan. 29 17
Montezuma, Ind.	--	--	--	25.7	18
Terre Haute, Ind.	14	Jan. 4 10	[illegible] 27	25.7 21.9	Jan. 16 19
Hutsonville, Ill.	--	--	--	23.7	21,22
Riverton, Ind.	--	--	--	22.4	22
Vincennes, Ind.	16	Dec. 29 13	10 †	28.6 21.0 23.0	Jan. 18 2,3 23
Mount Carmel, Ill.	17	Jan. 4	†	27.1 25.5	Jan. 13 22,23
New Harmony, Ind.	15	Jan. 5	†	23.4 21.4	Jan. 14 23,24
Cumberland:					
Williamsburg, Ky.	19	Jan. 31	5	30.3	3
Burnside, Ky.	50	2	2	50.5	2
Celina, Tenn.	40	1	9	52.3	5
Carthage, Tenn.	40	2	13	45.2	7,10
Nashville, Tenn.	40	1	18	48.6	10
Clarksville, Tenn.	46	1	21	56.3	15
Lock F, Eddyville, Ky.	50	Jan. 7	28	65.0 68.3	Jan. 19 16,17
First Creek: Knoxville, Tenn.	5	1	2	6.4	2
Duck:					
Columbia, Tenn.	32	Jan. 31	4	39.5	2
Centerville, Tenn.	22	Jan. 31	5	27.6	2
Tennessee:					
Florence, Ala.	18	1	16	22.7	14
Gilbertsville, Ky.	34	Jan. 5	†	56.2	13
Ohio:					
Point Pleasant, W. Va.	40	1	5	47.4	3
Gallipolis Dam, Hogsett, W. Va., Lower gage	50	2	5	53.6	3
Dam No.28, Huntington, W.Va.	50	1	5	56.7	3
Dam No.29, Ashland, Ky.	51	1	6	60.4	3
Dam No.30, near Greenup, Ky.	52	1	6	60.3	3
Portsmouth, Ohio	50	2	6	58.3	4
Dam No.33, near Maysville, Ky.	50	2	7	58.1	4
Dam No.35, New Richmond, Ohio	48	2	7	55.6	5
Dam No.36, near Brent, Ky.	52	2	8	59.55	5
Cincinnati, Ohio	52	2	8	59.1	5
Dam No.37, Fernbank, Ohio	50	2	9	58.5	5
Dam No.38, near Grant, Ky.	51	2	9	57.7	6
Dam No.39, Markland, Ind.	48	3	9	53.1	6
Madison, Ind.	46	3	10	52.1	6
Dam No.41, Louisville, Ky. Upper gage	28	2	11	36.4	7
Lower gage	55	3	11	63.4	7
Dam No.43, Evans Landing, Ind.	57	3	11	64.7	6-7
Dam No.44, Leavenworth, Ind.	53	2	16	63.9	7
Dam No.45, Addison, Ky.	47	2	17	54.8	7
Tell City, Ind.	38	1	19	47.0	[illegible]
Dam No.46, Owensboro, Ky.	41	3	18	45.7	9
Dam No.47, Newburgh, Ind.	38	1	27	47.7	9

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			Ft.	
MISSISSIPPI SYSTEM (Cont'd.)					
Ohio Basin (Cont'd.)					
Ohio (Cont'd.):					
Evansville, Ind.	42	3	19	45.3	10
Dam No.48, near Henderson, Ky.	38	Jan. 7	†	49.8 48.5	Jan. 19 9
Mount Vernon, Ind.	35	Jan. 7	†	49.8 47.5	Jan. 18 11
Dam No.49, Uniontown, Ky.	37	Jan. 7	†	54.0 50.5	Jan. 19 11
Shawneetown, Ill.	33	Jan. 6	†	55.3 52.0	Jan. 19 13
Dam No.50, Fords Ferry, Ky.	34	Jan. 5	†	58.5 55.7	Jan. 20 13
Dam No.51, Golconda, Ill.	40	Jan. 8	Mar. 4	54.4 53.6	Jan. 19 13
Paducah, Ky.	39	Jan. 7	Mar. 4	52.3 53.3	Jan. 26 13
Dam No.52, Brookport, Ill.	37	Jan. 6	Mar. 6	53.9 55.1	Jan. 20 13
Dam No.53, near Mound City, Ill.	42	Jan. 5	Mar. 7	57.8 58.5	Jan. 19 14
Cairo, Ill.	40	Jan. 5	Mar. 7	55.3 55.9	Jan. 19 15
White Basin					
Black:					
Poplar Bluff, Mo.	16	13	15	17.9	14
Black Rock, Ark.	14	Jan. 3	†	26.9 24.8	Jan. 5 14
White:					
Calico Rock, Ark.	19	13	14	23.0	13
Batesville, Ark.	23	13	17	28.8	14
Newport, Ark.	26	14	22	29.9	16
Augusta, Ark.	32	Jan. 7	†	35.7 34.5	Jan. 19 18
Georgetown, Ark.	21	Jan. 5	†	29.1 27.2	Jan. 19 19
Des Arc, Ark.	24	Jan. 6	†	32.9 30.6	Jan. 20 20
Clarendon, Ark.	26	Jan. 5	†	33.6 32.3	Jan. 22 22
St. Charles, Ark.	25	Jan. 7	†	33.0 33.2	Jan. 27 25
Arkansas Basin					
Poteau: Poteau, Okla.	24	12	13	25.7	13
Petit Jean: Danville, Ark.	20	12	19	25.0	13
Red Basin					
Little Missouri: Boughton, Ark.	20	3 13	4 14	21.4 22.0	3 14
Ouachita:					
Arkadelphia, Ark.	17	2 13	4 16	25.0 26.0	3 13
Camden, Ark.	26	3	25	39.5	17
Monroe, La.	40	--	†	47.25	Mar. 1-2
Black: Jonesville, La.	50	4	†	55.85	Mar. 6
Little:					
Horatio, Ark.	21	--	--	31.4 34.0	2 13
Whitecliffs, Ark.	25	3 14	8 20	27.8 29.1	4 15
Sulphur:					
Hagansport, Tex.	38	1 12	8 17	41.95 43.25	[illegible] 13
Naples, Tex.	22	3	24	31.3 31.15	5 16
McCartney Bridge, Tex.	22	--	--	29.5 30.2	[illegible] 19
Cypress: Jefferson, Tex.	18	8 13	11 21	20.2 24.6	8-9 16
Red:					
Fulton, Ark.	25	14	19	28.2	16

FLOOD STAGE REPORT

(All dates in February unless otherwise specified)

Table 5-Continued

River and station	Flood stage	Above flood stages -dates From-	To-	Crest* Stage	Date
	Ft.			*Ft.*	
MISSISSIPPI SYSTEM (Cont'd.)					
Red Basin (Cont'd.)					
ted (Cont'd.):					
Grand Ecore, La.	33	16	27	37.85	21
Alexandria, La.	32	13	Mar. 4	38.0	24
Lower Mississippi Basin					
St. Francis:					
Fisk, Mo.	20	Jan. 4	9	24.2	Jan.10,16
		13	†	23.8	18-20
St. Francis, Ark.	18	Dec. 29	†	18.5	Dec. 31
				23.5	Jan. 14
				21.9	Jan28,29
				21.8	24
Parkin, Ark.	28	Jan. 13	†	32.8	Jan. 27
				32.7	1-4,24-25
Madison, Ark.	32	Jan. 17	†	35.9	2
				35.7	23-Mar.1
Coldwater: Sarah, Miss.	18	1	5	20.2	2
		13	19	21.4	13
		22	22	19.4	22
Tallahatchie: Swan Lake, Miss.	26	Jan. 10	†	31.0	Jan. 19
				30.3	18
Yazoo:					
Greenwood, Miss.	35	18	†	36.8	23
Yazoo City, Miss.	29	Jan. 26	†	----	--
Mississippi:					
New Madrid, Mo.	34	Jan. 7	Mar. 7	43.1	Jan. 19
				43.5	16
Caruthersville, Mo.	32	Jan. 8	†	41.7	Jan. 18
				41.3	17
Memphis, Tenn.	34	Jan. 15	†	39.5	Jan. 27
				40.1	2
				40.5	22
Helena, Ark.	44	Jan. 17	†	48.7	Jan. 27
				49.5	3
				50.3	22-23
Greenville, Miss.	39	Jan. 30	†	41.2	24
Vicksburg, Miss.	43	10	†	----	—
Natchez, Miss.	48	Jan. 30	†	----	--
Red River Landing, La.	45	Jan. 25	†	53.7	Mar. 4-5
Baton Rouge, La.	35	Jan. 23	†	43.5	Mar. 4
Donaldsonville, La.	28	Jan. 23	†	33.6	Mar. 4
Reserve, La.	22	Jan. 24	†	25.6	10
New Orleans, La.	17	Jan. 24	†	20.0	10
Atchafalaya Basin					
Atchafalaya:					
Simmesport, La.	41	Jan. 29	†	48.5	Mar. 5
Melville, La.	37	Jan. 23	†	44.8	Mar. 5
Atchafalaya, La.	25	Jan. 12	†	30.4	Mar. 5
Morgan City, La.	6‡	Jan. 28	†	6.2	Jan. 29
				7.4	12,13
				7.6	22
				8.2	Mar.7-12
WEST GULF OF MEXICO DRAINAGE					
Bezpique Bayou: Basile, La.	22	16	18	22.65	16
Calcasieu: Kinder, La.	16	14	20	21.4	15
Sabine:					
Mineola, Tex.	14	3	20	19.8	5
Gladewater, Tex.	26	6	25	37.55	17
Logansport, La.	25	14	†	32.7	25
Milam, Tex.	35	15	†	40.5	24
Bon Wier, Tex.	17	12	†	22.1	16
Neches: Evadale, Tex.	16	14	†	17.6	22
Elm Fork: Carrollton, Tex.	6	1	3	7.0	2
		13	14	6.9	13
East Fork: Rockwall, Tex.	10	1	6	17.8	2
		12	16	16.6	14
Trinity:					
Dallas, Tex.	28	1	6	37.1	3
		12	16	35.8	13
Rosser, Tex.	26	2	9	35.95	5
		12	19	31.9	16
Trinidad, Tex.	28	4	23	40.4	8
				37.8	19
Long Lake, Tex.	40	10	25	44.8	17
Midway, Tex.	40	16	27	44.0	21
Liberty, Tex.	24	11	†	27.8	26
PACIFIC SLOPE DRAINAGE					
Russian: Guerneville, Calif.	29	4	5	30.75	4-5
Columbia Basin					
McKenzie:					
Leaburg, Oreg.	12	24	25	25.0	24
Coburg Bridge, Oreg.	11	25	25	12.0	25
Santiam: Jefferson, Oreg.	13	24	27	20.1	25
Molalla: Canby (near), Oreg.	11	25	25	11.1	25
Tualatin: Dilley, Oreg.	12	24	26	12.7	24
Willamette:					
Harrisburg, Oreg.	12	25	26	13.9	25
Oregon City, Oreg.	12	27	28	13.0	27,28
Chehalis Basin					
Skookumchuck: Centralia, Wash.	70	24	26	71.4	24
Chehalis:					
Centralia (1 W), Wash.	63	24	27	66.1	26
Grand Mound, Wash.	14.5	24	26	15.5	26
PUGET SOUND					
Snoqualmie: Tolt, Wash.	51.5	24	24	51.7	24
		26	26	51.7	26

* Provisional.
† Continued at end of month.
‡ Flood stage or higher reached intermittently from Jan. 28 to Feb. 4.

RADIOSONDE DATA

Average monthly values

Table 20 — FEBRUARY 1950

Standard pressure surface (mb)	Albany, N. Y. (1010 mb.)				Albuquerque, N. Mex. (839 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	27	86	-5.6	78	28	1,620	8.1	39
1,000--	27	164	-5.2	73	28	136	*	--
950----	27	572	-7.1	73	28	579	*	--
900----	27	984	-8.9	74	28	1,037	*	--
850----	27	1,426	-9.8	70	28	1,508	*	--
800----	27	1,893	-10.5	62	28	2,011	7.4	35
750----	27	2,394	-11.5	62	28	2,548	3.8	38
700----	27	2,916	-13.1	61	28	3,095	-.4	43
650----	27	3,486	-15.5	57	28	3,687	-4.9	45
600----	27	4,079	-18.5	49	28	4,307	-9.2	43
550----	27	4,727	-22.1		28	4,978	-13.3	37
500----	27	5,419	-26.2		28	5,694	-17.9	
450----	27	6,177	-31.2		27	6,478	-23.7	
400----	27	6,999	-36.5		27	7,326	-30.3	
350----	27	7,912	-42.7		27	8,261	-38.0	
300----	27	8,937	-49.0		27	9,302	-46.7	
250----	26	10,116	-53.9		26	10,485	-54.5	
200----	24	11,548	-55.0		26	11,898	-57.4	
175----	24	12,403	-54.1		26	12,740	-57.6	
150----	20	13,380	-54.4		23	13,708	-57.4	
125----	19	14,540	-55.4		19	14,850	-60.0	
100----	11	15,956	-56.6		13	16,230	-62.4	
80------	7	17,358	-56.9		10	17,612	-64.0	
60------								

Standard pressure surface (mb)	Atlanta, Ga. (986 mb.)				Big Spring, Tex. (928 mb.)				Bismarck, N. Dak. (959 mb.)				Boise, Idaho (919 mb.)				Brownsville, Tex. (1017 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	28	300	10.0	67	28	784	10.7	56	28	505	-13.5	80	28	868	1.6	75	28	6	19.1	85
1,000--	28	181	*	--	28	148	*	--	28	184	*	--	28	183	*	--	28	152	19.1	81
950----	28	610	10.6	57	28	579	*	--	28	585	-11.4	77	28	604	*	--	28	595	17.5	72
900----	28	1,059	8.6	58	28	1,036	11.7	50	28	997	-6.4	66	28	1,039	2.9	63	28	1,054	15.4	65
850----	28	1,529	6.5	55	28	1,514	11.1	44	28	1,445	-5.2	52	28	1,501	1.3	59	28	1,537	13.1	61
800----	28	2,025	4.4	52	28	2,018	8.9	39	28	1,920	-6.7	46	28	1,987	-1.4	62	28	2,045	10.8	55
750----	28	2,552	1.8	45	28	2,557	5.6	36	28	2,430	-8.5	46	28	2,507	-4.1	59	28	2,586	8.3	43
700----	28	3,102	-.8	38	28	3,109	1.9	35	28	2,955	-11.0	47	28	3,039	-7.2	61	28	3,148	5.2	37
650----	28	3,693	-3.7	32	28	3,706	-2.3	34	28	3,529	-14.2	46	28	3,623	-10.6	62	28	3,753	1.1	38
600----	28	4,318	-7.7		28	4,332	-6.8	31	27	4,119	-17.7	47	28	4,225	-14.0	55	28	4,387	-3.1	37
550----	28	4,990	-12.1		28	5,008	-11.7	33	27	4,774	-21.6		28	4,887	-18.3	51	28	5,069	-7.6	
500----	28	5,711	-17.3		28	5,728	-17.0	33	26	5,459	-26.7		28	5,585	-23.0		28	5,805	-12.1	
450----	28	6,494	-23.1		28	6,515	-22.9		26	6,220	-32.4		27	6,347	-28.6		26	6,604	-17.3	
400----	28	7,343	-29.5		27	7,367	-29.4		26	7,031	-38.1		27	7,177	-34.8		26	7,475	-23.7	
350----	28	8,281	-36.6		27	8,306	-36.6		26	7,937	-45.0		26	8,091	-41.7		25	8,432	-31.1	
300----	27	9,356	-44.2		27	9,356	-44.2		25	8,944	-51.8		21	9,141	-48.9		24	9,506	-39.3	
250----	26	10,558	-51.7		27	10,558	-51.7		25	10,110	-56.5		18	10,299	-56.9		23	10,727	-48.4	
200----	24	11,520	-55.4		27	11,986	-56.3		24	11,520	-55.4		17	11,705	-58.7		23	12,169	-56.3	
175----	20	12,353	-53.6		27	12,831	-57.2		20	12,353	-53.6		14	12,583	-56.0		23	12,980	-59.5	
150----	18	13,360	-53.2		27	13,802	-58.7		18	13,360	-53.2		12	13,575	-54.6		23	13,968	-62.8	
125----	14	14,540	-54.6		20	14,942	-62.4		14	14,540	-54.6		10	14,756	-55.9		21	15,088	-66.2	
100----	7	15,944	-57.9		15	16,310	-65.5		7	15,944	-57.9		9	16,184	-56.5		17	16,429	-70.1	
80------					7	17,714	-66.1										13	17,747	-71.4	
60------																				

Standard pressure surface (mb)	Buffalo, N. Y. (993 mb.)				Camaguey, Cuba (1005 mb.)				Caribou, Maine (994 mb.)				Charleston, S. C. (1020 mb.)				Ciudad Victoria, Mex. (976 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	28	221	-7.3	74	28	122	18.6	88	28	191	-13.5	72	28	18	11.0	77	26	335	23.3	53
1,000--	28	166	*	--	28	165	19.3	86	28	146	*	--	28	182	13.6	63	26	117	*	--
950----	28	574	-5.8	74	28	610	18.2	80	28	536	-12.7	70	28	617	12.2	55	26	566	21.5	54
900----	28	992	-7.3	76	28	1,070	15.9	72	28	944	-13.8	68	28	1,064	9.8	50	26	1,031	18.0	60
850----	28	1,436	-8.3	67	28	1,554	13.5	59	28	1,377	-14.3	66	28	1,537	7.5	47	26	1,518	14.2	66
800----	28	1,905	-9.7	56	28	2,062	10.6	56	28	1,836	-15.0	63	28	2,035	5.5	43	26	2,027	10.9	68
750----	28	2,406	-11.1	49	28	2,602	7.8	50	28	2,331	-16.0	60	28	2,569	3.2	40	26	2,570	8.1	60
700----	28	2,931	-12.5	49	28	3,164	5.1	38	28	2,842	-17.5	55	28	3,117	.5	38	26	3,130	5.2	52
650----	26	3,496	-14.6	47	28	3,778	2.8		28	3,401	-20.2	53	28	3,718	-2.2	33	26	3,735	1.3	45
600----	25	4,100	-16.2	46	28	4,411	-.5		28	3,984	-23.1		28	4,340	-6.1	31	25	4,373	-3.0	43
550----	25	4,752	-20.4		28	5,104	-4.7		28	4,621	-26.4		28	5,024	-10.4		25	5,059	-7.2	
500----	25	5,447	-24.4		28	5,845	-9.4		28	5,299	-30.4		28	5,742	-15.4		25	5,794	-11.8	
450----	25	6,209	-29.4		28	6,659	-15.0		28	6,045	-34.8		26	6,533	-21.2		25	6,598	-17.1	
400----	24	7,033	-35.4		28	7,532	-21.6		28	6,856	-39.7		26	7,385	-27.7		25	7,465	-23.7	
350----	24	7,949	-41.7		28	8,501	-29.1		28	7,760	-44.1		26	8,330	-35.0		25	8,426	-31.0	
300----	24	8,978	-48.3		28	9,585	-37.0		28	8,784	-48.1		26	9,387	-43.2		25	9,500	-39.3	
250----	23	10,166	-53.7		28	10,823	-45.9		27	9,977	-50.6		25	10,595	-51.6		23	10,721	-48.4	
200----	23	11,593	-53.9		28	12,279	-55.1		24	11,450	-49.5		25	12,024	-56.3		21	12,159	-57.4	
175----	18	12,454	-52.9		28	13,122	-59.8		24	12,325	-49.1		24	12,867	-57.0		21	12,995	-61.1	
150----	17	13,449	-53.3		28	14,074	-64.5		22	13,340	-49.2		23	13,848	-58.9		18	13,943	-65.2	
125----	14	14,635	-54.2		27	15,298	-69.9		19	14,534	-50.3		16	14,990	-62.7		16	15,037	-68.5	
100----	12	16,069	-56.7		24	16,482	-75.5		13	15,968	-50.5		12	16,367	-66.3		12	16,365	-72.4	
80------	5	17,464	-56.3		24	17,770	-75.6		7	17,488	-50.2						10	17,667	-73.8	
60------					15	19,453	-69.4													
50------					14	20,557	-65.0													

Standard pressure surface (mb)	Columbia, Mo. (991 mb.)				Dodge City, Kans. (926 mb.)				El Paso, Tex. (885 mb.)				Ely, Nev. (810 mb.)				Glasgow, Mont. (940 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	28	239	1.9	69	28	792	2.8	59	28	1,195	13.2	34	28	1,908	-0.7	67	28	648	-11.0	78
1,000--	28	164	*	--	28	158	*	--	28	123	*	--	28	180	*	--	28	168	*	--
950----	28	584	1.5	60	28	583	*	--	28	571	*	--	28	608	*	--	28	574	*	--
900----	28	1,015	1.4	57	28	1,024	6.1	51	28	1,031	*	--	28	1,053	*	--	28	991	-3.2	65
850----	28	1,475	1.4	53	28	1,491	5.4	44	28	1,512	13.3	31	28	1,517	*	--	28	1,445	-2.5	52
800----	28	1,962	.0	51	28	1,985	3.6	40	28	2,018	9.5	34	28	2,008	2.4	53	28	1,924	-4.3	51
750----	28	2,485	-2.1	52	28	2,510	.8	39	28	2,554	5.7	34	28	2,530	-.6	48	28	2,433	-7.6	54
700----	28	3,022	-4.9	51	28	3,057	-2.6	36	28	3,108	1.5	35	28	3,074	-4.5	49	28	2,963	-10.8	55
650----	26	3,610	-8.1	49	28	3,644	-6.4	35	28	3,704	-3.3	37	28	3,658	-7.9	47	28	3,536	-14.4	52
600----	25	4,219	-11.5	43	28	4,261	-10.4	35	28	4,327	-7.8	33	28	4,272	-11.5	41	28	4,131	-18.4	54
550----	25	4,886	-15.9	39	28	4,928	-14.8		28	5,000	-12.6		28	4,938	-16.1	42	28	4,780	-22.4	
500----	25	5,592	-20.8		28	5,640	-20.1		28	5,719	-17.6		28	5,645	-20.9		28	5,469	-27.4	
450----	25	6,370	-26.3		28	6,411	-26.1		28	6,503	-23.4		28	6,417	-26.7		28	6,223	-32.8	
400----	24	7,205	-32.3		28	7,252	-33.0		28	7,350	-30.3		28	7,254	-33.2		28	7,039	-38.7	
350----	24	8,132	-39.5		28	8,177	-40.1		28	8,286	-37.4		27	8,178	-40.4		28	7,943	-45.2	
300----	24	9,169	-47.4		27	9,204	-48.3		27	9,328	-44.9		27	9,209	-49.0		28	8,956	-52.1	
250----	23	10,352	-54.9		27	10,384	-55.3		25	10,518	-52.6		25	10,389	-56.9		27	10,115	-57.2	
200----	21	11,761	-57.1		26	11,800	-57.7		23	11,940	-55.2		21	11,779	-58.9		27	11,522	-56.5	
175----	21	12,623	-56.3		24	12,657	-56.7		23	12,790	-56.0		19	12,617	-57.0		25	12,372	-54.1	
150----	18	13,602	-56.1		24	13,632	-57.2		19	13,777	-58.9		18	13,589	-57.9		23	13,359	-54.2	
125----	14	14,756	-58.3		22	14,780	-59.2		17	14,907	-62.5		13	14,744	-59.0		17	14,521	-55.6	
100----	11	16,157	-61.1		20	16,167	-62.3		11	16,265	-65.5		10	16,126	-61.7		16	15,934	-57.0	
80------	11	17,550	-61.7		16	17,540	-62.2		6	17,641	-67.6						9	17,330	-57.6	
60------					5	19,319	-62.0		5	19,390	-63.5									

Standard pressure surface (mb)	Grand Junction, Colo. (856 mb.)				Great Falls, Mont. (884 mb.)				Greensboro, N. C. (989 mb.)				Hatteras, N. C. (1021 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	28	1,474	0.8	71	28	1,128	1.8	54	28	273	4.7	78	28	3	11.2	74
1,000--	28	196	*	--	27	122	*	--	28	178	*	--	28	176	11.2	66
950----	28	624	*	--	28	547	*	--	28	601	6.9	62	28	606	8.9	59
900----	28	1,065	*	--	28	989	*	--	28	1,043	5.4	59	28	1,049	6.2	57
850----	28	1,526	2.4	63	28	1,448	1.6	45	28	1,509	3.4	62	28	1,515	3.4	54
800----	28	2,017	2.2	50	28	1,934	-2.0	46	28	1,999	1.2	53	28	2,005	1.6	47
750----	28	2,540	-.6	52	28	2,447	-5.8	48	28	2,523	-.6	47	28	2,532	.0	41
700----	28	3,083	-4.1	54	28	2,980	-9.5	51	28	3,065	-3.2	42	28	3,074	-2.5	39
650----	28	3,667	-7.5	51	28	3,551	-13.4	50	28	3,654	-5.9	32	28	3,666	-5.8	41
600----	28	4,283	-11.3	47	28	4,152	-17.3	49	28	4,271	-9.6	34	28	4,282	-9.1	37
550----	28	4,949	-15.3	39	28	4,802	-21.6		27	4,939	-13.6		28	4,953	-13.3	35
500----	28	5,659	-19.9	37	28	5,495	-26.3		26	5,653	-18.4		28	5,669	-18.2	36
450----	28	6,433	-25.8		28	6,240	-31.9		25	6,424	-24.4		28	6,453	-23.7	
400----	28	7,273	-31.9		28	7,070	-38.2		25	7,272	-30.6		28	7,299	-30.1	
350----	28	8,203	-38.8		27	7,979	-45.0		25	8,207	-37.6		28	8,235	-36.9	
300----	27	9,241	-47.2		23	9,001	-52.0		23	9,246	-45.7		28	9,284	-44.5	
250----	27	10,424	-55.3		17	10,235	-57.1		23	10,438	-53.5		28	10,482	-52.2	
200----	26	11,826	-57.6		13	11,564	-57.7		20	11,877	-57.9		24	11,900	-56.7	
175----	26	12,672	-55.7		11	12,406	-53.6		19	12,726	-55.9		23	12,763	-56.5	
150----	24	13,659	-55.5		7	13,399	-52.9		18	13,707	-57.1		21	13,753	-58.0	
125----	22	14,809	-57.2		5	14,602	-53.9		11	14,843	-49.1		15	14,911	-61.4	
100----	18	16,216	-59.6										9	16,271	-63.5	
80------	10	17,622	-60.3													
60------																

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb.)	Havana, Cuba (1014 mb.)				Honolulu, T. H. (1015 mb.)				International Falls, Minn. (977 mb.)				Joliet, Ill. (999 mb.)				Lake Charles, La. (1020 mb.)				Lander, Wyo. (828 mb.)				Las Vegas, Nev. (940 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
urface	28	49	21.4	77	28	3	24.4	70	28	361	-13.3	69	28	179	-4.0	81	28	5	14.5	86	28	1,696	-0.7	54	28	660	10.8	32
,000--	28	169	21.4	76	28	130	22.9	71	28	178	*	--	28	168	*	--	28	169	15.2	78	28	151	*	--	28	141	*	--
50----	28	615	18.4	76	28	579	19.4	76	28	576	-11.3	66	28	575	-4.3	72	28	609	13.6	74	28	579	*	--	28	577	*	--
00----	28	1,075	15.3	76	28	1,039	15.9	81	28	987	-11.3	58	28	999	-4.1	64	28	1,057	11.7	70	28	1,021	*	--	28	1,030	13.5	27
50----	28	1,558	12.6	70	28	1,523	13.3	75	28	1,425	-10.8	53	28	1,450	-4.3	60	28	1,534	9.8	62	28	1,481	*	--	28	1,507	10.0	30
00----	28	2,065	10.1	59	28	2,033	12.7	49	28	1,891	-10.6	48	28	1,927	-4.7	58	28	2,036	7.1	53	28	1,970	1.3	42	28	2,008	6.2	34
50----	28	2,606	8.4	42	28	2,579	10.1	39	28	2,391	-12.3	48	28	2,440	-6.3	54	28	2,572	4.5	48	28	2,493	-1.6	40	28	2,539	2.5	37
00----	28	3,168	5.9		28	3,143	6.8	37	28	2,911	-14.5	47	28	2,971	-8.7	52	28	3,124	2.1	40	28	3,032	-5.2	39	28	3,087	-1.3	39
50----	28	3,774	2.6		28	3,750	3.3	38	28	3,480	-17.4	51	28	3,548	-11.8	48	28	3,723	-1.7	36	28	3,614	-9.2	37	28	3,678	-4.6	35
00----	28	4,414	-.7		28	4,391	-.9	40	28	4,065	-20.4	50	28	4,151	-15.1	42	27	4,353	-5.9		28	4,224	-12.9	36	28	4,300	-8.9	36
50----	28	5,105	-4.5		28	5,084	-5.0	41	28	4,710	-23.9		28	4,808	-19.0	40	27	5,031	-10.6		28	4,886	-17.4	35	28	4,970	-13.2	33
00----	28	5,846	-9.5		28	5,824	-9.6	44	27	5,392	-28.5		28	5,507	-23.6		27	5,754	-15.6		28	5,588	-22.6		28	5,687	-18.2	
50----	28	6,655	-15.3		28	6,636	-14.9	45	27	6,142	-33.7		28	6,271	-28.8		27	6,544	-21.2		28	6,360	-28.3		28	6,465	-24.3	
00----	28	7,530	-22.2		28	7,513	-20.6		27	6,955	-39.5		28	7,101	-34.6		26	7,394	-27.7		28	7,186	-34.7		28	7,312	-31.1	
50----	28	8,498	-29.5		28	8,487	-27.4		27	7,856	-45.3		28	8,020	-41.4		26	8,340	-34.4		28	8,103	-42.2		28	8,244	-38.7	
00----	27	9,575	-37.8		28	9,579	-35.3		27	8,870	-51.0		28	9,050	-48.5		26	9,400	-42.2		28	9,126	-50.1		28	9,283	-46.9	
50----	27	10,807	-46.8		28	10,824	-45.0		25	10,055	-54.5		28	10,232	-54.6		26	10,608	-51.1		27	10,298	-58.1		27	10,474	-55.9	
00----	27	12,256	-55.5		27	12,282	-55.1		23	11,483	-53.2		27	11,656	-56.1		26	12,036	-57.1		26	11,689	-60.0		27	11,876	-59.5	
75----	26	13,097	-58.9		27	13,124	-59.8		23	12,346	-51.4		25	12,514	-55.6		25	12,882	-58.9		24	12,529	-56.6		27	12,713	-58.2	
50----	26	14,054	-63.3		25	14,077	-64.9		20	13,353	-52.1		25	13,497	-55.4		24	13,850	-61.1		23	13,512	-56.1		27	13,683	-58.8	
25----	26	15,160	-68.5		20	15,177	-69.9		15	14,510	-53.0		20	14,659	-57.7		22	14,987	-64.7		22	14,673	-57.5		25	14,820	-60.8	
00----	21	16,483	-73.6		16	16,485	-74.0		6	15,916	-53.9		9	16,030	-57.7		20	16,324	-68.5		19	16,075	-59.0		22	16,205	-63.7	
0-----	16	17,597	-74.5		8	17,798	-74.7										10	17,650	-68.1		13	17,494	-59.4		17	17,582	-64.3	
0-----	7	19,492	-68.9																		6	19,305	-59.3		9	19,351	-62.2	

Standard pressure surface (mb.)	Little Rock, Ark. (1011 mb.)				Mazatlan, Mex. (1011 mb.)				Medford, Oreg. (972 mb.)				Merida, Mex. (1014 mb.)				Miami, Fla. (1021 mb.)				Nantucket, Mass. (1017 mb.)				Nashville, Tenn. (1000 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
urface	28	79	8.0	74	28	14	21.2	77	28	401	5.6	79	28	27	23.4	70	28	4	20.0	74	27	14	0.4	70	28	177	5.6	77
,000--	28	166	8.2	68	28	113	20.7	68	28	164	*	--	28	151	22.7	69	28	180	20.3	69	27	150	.1	74	28	174	*	--
50----	28	594	8.2	64	28	569	22.6	36	28	587	6.9	68	28	596	20.3	66	28	623	17.2	69	27	561	-1.8	71	28	597	5.4	63
00----	28	1,037	7.9	63	28	1,026	20.7	31	28	1,028	4.6	63	28	1,062	17.4	70	28	1,081	14.5	65	27	989	-4.2	69	28	1,036	4.7	57
50----	28	1,508	6.5	60	28	1,516	17.3	28	28	1,491	1.7	60	28	1,548	14.2	74	28	1,562	11.4	67	27	1,439	-4.3	64	28	1,501	3.5	55
00----	28	2,004	4.6	54	28	2,030	13.8	28	28	1,977	-1.1	60	28	2,058	10.8	74	28	2,066	9.0	52	27	1,916	-5.6	55	28	1,992	2.0	52
50----	28	2,534	2.3	49	28	2,577	10.2	31	28	2,493	-3.7	59	28	2,600	7.9	63	28	2,608	6.7	42	27	2,426	-7.6	57	28	2,518	-.3	47
00----	28	3,082	-.9	47	28	3,139	6.0	31	28	3,033	-6.3	54	28	3,161	5.9	46	28	3,162	4.5		27	2,956	-9.4	57	28	3,060	-2.9	46
50----	28	3,673	-4.4	45	28	3,747	1.6	30	28	3,613	-9.6	50	28	3,773	3.5		28	3,768	1.5		26	3,533	-12.4	54	27	3,647	-6.4	44
00----	28	4,295	-8.4	42	28	4,382	-3.0		27	4,222	-13.4	46	28	4,411	-.1		28	4,402	-2.2		26	4,133	-15.0	49	27	4,263	-9.5	40
50----	28	4,966	-12.9	43	26	5,070	-7.4		27	4,882	-17.8	47	28	5,107	-4.4		28	5,090	-6.4		26	4,788	-19.0	48	27	4,934	-13.6	40
00----	28	5,684	-18.1	40	26	5,804	-12.0		27	5,585	-22.7		28	5,847	-9.0		27	5,826	-11.2		25	5,504	-22.5		27	5,647	-18.5	39
50----	28	6,463	-23.6		25	6,508	-17.3		25	6,356	-28.5		28	6,661	-14.7		27	6,633	-16.9		25	6,270	-27.7		26	6,423	-24.2	
00----	28	7,313	-30.1		22	7,473	-23.9		25	7,188	-34.9		28	7,536	-21.7		27	7,501	-23.5		25	7,105	-33.7		26	7,268	-30.5	
50----	28	8,249	-37.4		20	8,483	-31.0		24	8,107	-41.8		28	8,505	-29.3		26	8,458	-31.1		25	8,028	-40.2		26	8,203	-37.7	
00----	26	9,291	-45.2		19	9,506	-39.1		24	9,132	-49.4		28	9,585	-38.1		24	9,527	-39.5		23	9,060	-46.4		25	9,258	-45.8	
50----	25	10,498	-53.6		17	10,733	-48.1		22	10,299	-57.3		28	10,813	-47.7		23	10,752	-47.7		20	10,299	-52.3		23	10,449	-54.4	
00----	25	11,920	-56.3		16	12,173	-57.2		14	11,702	-61.5		26	12,254	-57.3		22	12,203	-55.4		17	11,764	-56.8		22	11,860	-57.0	
75----	24	12,760	-55.9		15	13,007	-61.0		7	12,553	-58.6		26	13,087	-62.1		21	13,041	-59.1		14	12,646	-56.7		20	12,717	-56.0	
50----	22	13,737	-58.2		13	13,958	-65.3						25	14,030	-66.8		21	13,999	-62.8		12	13,614	-56.9		17	13,688	-57.2	
25----	18	14,865	-60.7		11	15,055	-68.1						20	15,119	-71.5		17	15,123	-66.3		7	14,763	-57.6		14	14,852	-59.9	
00----	9	16,246	-64.5		10	16,384	-71.5						13	16,415	-77.0		14	16.453	-70.6						10	16,215	-62.0	
0-----					5	17,708	-73.3						7	17,683	-76.6													

Standard pressure surface (mb.)	New Orleans, La. (1021 mb.)				North Platte, Nebr. (919 mb.)				Oakland, Calif. (1020mb.)				Oklahoma City, Okla. (972 mb.)				Omaha, Nebr. (984 mb.)				Phoenix, Ariz. (976 mb.)				Pittsburgh, Pa. (974 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
rface	28	2	15.2	83	28	849	-1.9	80	28	6	10.6	80	28	391	6.9	70	28	308	-2.5	76	28	338	14.4	53	28	382	-0.4	73
000--	28	177	16.1	74	28	167	*	--	28	167	10.4	77	28	156	*	--	28	176	*	--	28	133	*	--	28	168	*	--
0----	28	616	14.3	68	28	584	*	--	28	596	9.3	67	28	584	8.5	59	28	586	-2.4	65	28	574	18.6	32	28	583	-1.1	70
0----	28	1,068	12.4	64	28	1,018	1.3	66	28	1,042	8.2	58	28	1,027	7.5	56	28	1,015	-1.3	59	28	1,032	15.3	29	28	1,011	-3.0	68
0----	28	1,546	10.4	56	28	1,478	1.8	52	28	1,513	6.6	42	28	1,497	7.0	51	28	1,471	-1.0	55	28	1,513	11.7	31	28	1,462	-4.7	65
0----	28	2,048	8.0	48	28	1,966	.3	51	28	2,008	4.3	40	28	1,994	5.3	42	28	1,953	-2.1	51	28	2,016	7.9	34	28	1,937	-6.1	57
0----	28	2,585	5.4	44	28	2,484	-2.7	50	28	2,574	1.6	38	28	2,525	2.4	41	28	2,468	-4.2	48	28	2,550	4.0	36	28	2,448	-7.1	52
0----	28	3,140	2.8	36	28	3,024	-6.0	50	28	3,083	-1.5	38	28	3,072	-.4	40	28	3,006	-6.9	51	28	3,101	.2	37	28	2,978	-8.7	52
0----	28	3,740	-.7	33	28	3,605	-9.8	51	28	3,674	-5.2	37	28	3,664	-4.4	40	28	3,588	-9.9	51	28	3,692	-3.6	36	28	3,556	-11.4	50
0----	27	4,367	-4.8	32	28	4,214	-13.8	49	28	4,293	-9.4	34	28	4,286	-8.5	36	28	4,195	-13.3	47	28	4,317	-7.7	34	28	4,159	-14.4	46
0----	27	5,047	-9.4		28	4,872	-18.0	49	28	4,963	-14.0	35	28	4,959	-12.9	35	28	4,856	-17.7	44	28	4,990	-12.0		27	4,815	-18.4	44
0----	26	5,771	-14.5		28	5,575	-22.9		28	5,677	-19.3	36	28	5,675	-18.3	37	28	5,559	-22.6		28	5,710	-17.1		27	5,516	-22.9	
0----	26	6,565	-23.0		28	6,336	-28.5		28	6,454	-25.0		28	6,457	-24.2		28	6,328	-28.4		28	6,490	-23.1		27	6,282	-28.1	
0----	26	7,423	-26.6		28	7,172	-34.6		28	7,296	-31.5		28	7,301	-30.9		28	7,159	-34.6		28	7,341	-29.8		27	7,116	-34.0	
0----	25	8,371	-33.6		28	8,091	-41.7		28	8,227	-38.8		28	8,234	-38.1		28	8,078	-41.7		28	8,277	-37.2		27	8,038	-40.6	
0----	25	9,435	-41.7		28	9,117	-49.6		28	9,268	-46.8		28	9,276	-46.0		28	9,105	-49.6		27	9,321	-44.9		26	9,082	-47.8	
0----	25	10,647	-50.0		27	10,294	-56.5		28	10,455	-54.9		28	10,467	-53.5		28	10,283	-55.5		27	10,518	-52.6		26	10,268	-54.2	
0----	24	12,082	-56.0		27	11,701	-57.3		27	11,857	-59.5		27	11,886	-57.4		28	11,697	-56.0		25	11,937	-57.3		26	11,691	-54.7	
5----	24	12,926	-58.2		27	12,549	-55.4		22	12,718	-56.7		27	12,731	-56.7		28	12,585	-54.6		21	12,766	-57.3		25	12,545	-54.1	
0----	23	13,892	-60.7		26	13,528	-55.4		20	13,705	-57.0		26	13,707	-57.9		28	13,534	-54.9		18	13,732	-57.4		22	13,539	-55.4	
5----	21	15,014	-63.8		24	14,692	-57.0		17	14,852	-59.2		26	14,848	-60.9		27	14,696	-56.2		16	14,874	-60.9		20	14,694	-56.7	
0----	21	16,369	-67.2		21	16,090	-59.0		12	16,266	-61.8		23	16,222	-63.5		22	16,124	-58.6		10	16,282	-65.1		17	16,114	-58.4	
0----	17	17,706	-68.0		13	17,498	-59.2						15	17,605	-63.5		14	17,519	-59.3						11	17,531	-59.4	
0----	5	19,439	-67.7		5	19,318	-58.2																					

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb)	Portland, Maine (1017 mb.)				Rapid City, S. Dak. (903 mb.)				St. Cloud, Minn. (982 mb.)				San Antonio, Tex. (991 mb.)				San Juan, P. R. (1015 mb.)				Santa Maria, Calif. (1011 mb.)				Sault Ste. Marie, Mic (993 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	27	20	-7.0	74	28	980	-3.9	74	28	317	-10.6	72	28	24	13.0	84	28	19	22.8	81	28	71	10.3	83	28	221	-10.0	76
1,000--	27	150	-6.8	65	28	164	*	--	28	176	*	--	28	160	*	--	28	152	22.2	82	28	158	11.4	74	28	164	*	--
950----	27	556	-7.2	68	28	581	*	--	28	579	-8.3	64	28	597	15.2	73	28	600	19.0	83	28	592	12.2	55	28	565	-10.4	70
900----	27	971	-8.8	65	28	1,010	-2.3	68	28	994	-7.0	56	28	1,054	13.8	73	28	1,060	15.8	82	28	1,039	10.6	48	28	975	-11.8	66
850----	27	1,413	-9.5	56	28	1,467	-1.8	51	28	1,441	-6.5	49	28	1,535	11.4	73	28	1,54	12.9	78	28	1,514	8.8	38	28	1,413	-12.2	58
800----	27	1,881	-10.6	48	28	1,951	-2.0	49	28	1,914	-7.2	42	28	2,040	8.7	63	28	2,052	10.6	72	28	2,013	6.6	35	28	1,875	-13.5	57
750----	27	2,382	-12.1	48	28	2,469	-4.7	47	28	2,423	-8.7	41	28	2,576	6.5	48	28	2,596	8.7	60	28	2,549	3.7	34	28	2,373	14.7	51
700----	27	2,901	-13.1	51	28	3,002	-7.7	50	28	2,948	-10.8	45	28	3,135	3.2	37	28	3,156	6.5	51	28	3,097	.3	36	28	2,885	-16.2	48
650----	27	3,469	-16.8	51	28	3,582	-10.9	47	28	3,523	-13.6	44	28	3,733	-.9	36	28	3,764	3.1	45	28	3,692	-3.6	38	28	3,451	-18.5	45
600----	27	4,059	-19.4	51	28	4,185	-14.7	42	28	4,120	-17.1	46	28	4,366	-5.3	33	28	4,405	-.2		28	4,315	-7.3	36	28	4,034	-21.1	
550----	27	4,707	-22.9		28	4,845	-19.1	42	28	4,772	-21.3		28	5,044	-10.0	30	28	5,096	-4.2		28	4,992	-12.0	34	27	4,670	-24.7	
500----	27	5,394	-27.3		28	5,541	-23.9		28	5,465	-25.7		28	5,773	-15.2		27	5,839	-8.6		28	5,710	-16.9		27	5,354	-29.0	
450----	27	6,149	-32.2		28	6,304	-29.5		28	6,225	-31.1		28	6,563	-20.8		27	6,650	-14.4		28	6,496	-23.0		27	6,105	-33.8	
400----	27	6,967	-38.0		28	7,131	-36.0		28	7,045	-36.9		28	7,422	-27.0		27	7,529	-20.6		28	7,344	-29.5		27	6,918	-39.0	
350----	27	7,876	-43.5		28	8,045	-42.9		28	7,957	-43.0		27	8,371	-33.9		27	8,502	-27.2		26	8,284	-36.6		27	7,821	-45.0	
300----	27	8,900	-49.3		28	9,066	-50.5		28	8,981	-49.6		25	9,424	-41.7		26	9,595	-34.8		26	9,334	-44.4		26	8,837	-50.3	
250----	24	10,042	-52.9		28	10,235	-56.9		27	10 164	-54.0		21	10,646	-48.9		26	10,843	-44.0		25	10,536	-53.1		26	10,015	-53.7	
200----	23	11,476	-52.5		27	11,646	-56.1		26	11,591	-54.0		17	12,087	-55.2		24	12,306	-54.9		25	11,953	-58.2		25	11,455	-53.0	
175----	20	12,325	-50.5		27	12,497	-54.6		24	12,467	-52.9		13	12,925	-58.6		23	13,146	-60.2		24	12,791	-57.0		23	12,322	-51.2	
150----	18	13,340	-50.9		23	13,473	-54.6		24	13,462	-52.4		12	13,886	-61.0		23	14,095	-65.2		23	13,763	-57.6		22	13,328	-51.3	
125----	14	14,542	-53.3		22	14,633	-55.0		22	14,636	-53.0		8	15,032	-63.6		23	15,191	-70.4		21	14,906	-59.8		19	14,517	-52.8	
100----	9	15,330	-54.4		15	16,066	-56.5		18	16,085	-53.9						20	16,498	-76.4		11	16,293	-60.7		15	15,954	-54.7	
80-----					10	17,503	-57.3		7	17,512	-54.1						12	17,777	-76.8						6	17,401	-53.3	
60-----																	6	19,487	-68.6									

Standard pressure surface (mb)	Spokane, Wash. (933 mb.)				Swan Island, W. I. (1015 mb.)				Tacubaya, Mex. (774 mb.)				Tampa, Fla. (1021 mb.)				Tatoosh Island, Wash. (1011 mb.)				Toledo, Ohio (998 mb.)				Washington, D. C. (1019 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	28	926	-1.9	82	28	10	24.1	77	28	2,306	15.8	40	28	[illegible]	16.9	77	28	31	5.0	88	26	191	-2.7	79	28	25	3.6	69
1,000--	28	167	*	--	28	145	23.2	78	28	66	*	--	28	186	17.7	70	28	119	4.4	88	26	172	*	--	28	174	2.4	65
950----	28	580	*	--	28	593	19.7	81	28	526	*	--	28	625	15.9	58	28	541	2.2	85	26	581	-4.1	73	28	589	.9	65
900----	28	1,010	.1	74	28	1,056	16.6	75	28	1,003	*	--	28	1,081	13.2	56	28	970	-.3	84	26	1,003	-5.6	66	28	1,021	-1.0	67
850----	28	1,467	-1.7	67	28	1,541	13.9	69	28	1,496	*	--	28	1,560	10.7	54	28	1,425	-2.8	82	26	1,450	-6.1	55	28	1,476	-2.3	65
800----	28	1,947	-4.6	64	28	2,051	11.2	60	28	2,021	*	--	28	2,063	7.9	48	28	1,904	-5.4	76	26	1,924	-7.0	54	28	1,956	-4.1	59
750----	28	2,458	-7.4	65	28	2,594	8.0	55	28	2,573	14.0	40	28	2,598	5.7	39	28	2,414	-8.0	69	26	2,435	-8.1	53	28	2,470	-5.7	56
700----	28	2,987	-10.2	64	28	3,156	6.5	38	28	3,148	9.6	46	28	3,154	3.5		28	2,941	-10.5	63	26	2,959	-9.7	52	28	3,003	-7.6	52
650----	28	3,563	-13.2	65	28	3,763	3.8		28	3,765	4.6	52	28	3,751	.0		28	3,515	-13.7	58	26	3,538	-12.8	50	28	3,582	-10.3	51
600----	28	4,161	-16.5	65	28	4,407	1.0		28	4,405	-.6	56	28	4,387	-3.9		28	4,112	-16.9	57	25	4,140	-15.8	47	28	4,189	-13.6	45
550----	28	4,813	-20.5		28	5,100	-2.9		26	5,104	-4.8	48	28	5,069	-8.2		27	4,763	-21.0		25	4,799	-19.5	44	28	4,851	-17.5	41
500----	28	5,508	-25.0		28	5,850	-7.7		25	5,841	-9.1		28	5,801	-13.1		27	5,457	-25.5		25	5,494	-23.8		28	5,553	-22.2	
450----	28	6,269	-30.5		28	6,666	-13.5		23	6,663	-14.7		28	6,598	-18.9		26	6,221	-30.5		24	6,262	-29.3		28	6,320	-27.5	
400----	28	7,093	-36.6		28	7,546	-20.1		22	7,535	-21.2		27	7,461	-25.5		26	7,045	-36.1		23	7,087	-34.8		28	7,156	-33.8	
350----	27	8,004	-43.7		28	8,520	-27.3		21	8,504	-29.4		27	8,414	-32.8		26	7,959	-42.4		23	8,006	-41.3		27	8,080	-40.6	
300----	27	9,023	-50.8		28	9,611	-35.9		16	9,581	-38.3		27	9,481	-40.9		23	8,995	-48.7		22	9,044	-47.9		27	9,113	-47.7	
250----	26	10,207	-56.8		26	10,462	-45.5		13	10,812	-47.7		27	10,699	-49.0		19	10,163	-54.7		21	10,239	-54.0		27	10,298	-54.2	
200----	26	11,613	-57.4		25	12,301	-55.6		7	12,255	-58.1		27	12,138	-55.9		11	11,564	-57.2		21	11,656	-56.5		27	11,714	-56.1	
175----	26	12,463	-53.9		25	13,143	-60.7		6	13,089	-62.1		26	12,987	-59.1		6	12,398	-54.7		20	12,501	-54.5		25	12,570	-55.2	
150----	24	13,464	-52.6		25	14,089	-65.8		5	14,020	-68.0		26	13,946	-62.1		5	13,406	-53.3		20	13,487	-54.8		23	13,559	-56.7	
125----	22	14,636	-54.0		25	15,181	-71.6						25	15,065	-66.0		5	14,581	-52.8		13	14,672	-58.1		21	14,693	-57.6	
100----	11	16,095	-54.5		25	16,475	-77.6						24	16,406	-69.7						11	16,081	-60.9		17	16,089	-59.7	
80-----	7	17,546	-54.1		17	17,746	-77.1						20	17,734	-70.7						7	17,453	-61.2		11	17,451	-59.9	
60-----					8	19,416	-69.3																					

* Temperature and relative humidity data for this level are not available or are available only for certain days.

Note.--All observations scheduled between 0300 and 0500, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200, G.C.T. "Number of observations" refers to those of dynamic height only. (In a few cases temperature or humidity data may be missing for one or more standard pressure surfaces of some observations.) Relative humidity data are not published for standard pressure surfaces having a corresponding mean temperature below -20°C. Relative humidity data beginning with October 1, 1948, were computed, and expressed in these tables, on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C. have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

None of the means included in these tables are based on less than 15 observations at the surface or 5 observations at a standard pressure level.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

Table 21

FEBRUARY 1950

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N.Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	27	225	0.9	28	282	1.9	25	263	3.3	27	277	2.8	27	294	0.9	25	98	0.9	27	130	4.4	26	268	2.5	23	288	1.4	27	219	2.2	24	250	3.3	28	258	2.6
500	--	---	----	--	---	----	25	271	3.6	--	---	----	--	---	----	--	---	----	27	148	5.1	26	265	3.7	23	243	2.9	27	230	2.9	24	252	4.3	--	---	----
1,000	27	227	1.5	--	---	----	24	279	4.6	--	---	----	27	269	3.1	25	144	1.3	21	167	5.3	21	262	6.8	22	276	5.1	25	258	4.8	22	265	6.0	--	---	----
1,500	24	242	4.2	--	---	----	24	289	7.2	27	274	7.7	25	286	5.6	25	164	2.5	15	203	4.3	16	271	9.3	17	288	7.2	24	273	7.7	15	278	8.7	28	253	2.5
2,000	23	246	7.3	28	274	2.8	22	287	10.5	27	290	9.5	22	287	7.5	25	229	3.9	11	247	3.0	12	278	9.0				23	274	9.5	15	291	12.4	28	254	3.4
2,500	21	261	9.4	27	279	4.3	21	281	12.6	27	295	10.6	22	288	8.5	24	249	6.4	10	255	4.7							23	274	11.3	14	296	15.4	28	256	4.9
3,000	20	267	10.7	27	288	6.6	19	279	13.9	25	296	11.9	22	295	11.4	22	259	8.0										22	276	14.3	13	296	16.8	27	263	6.3
4,000	20	275	12.0	25	283	9.6	18	281	17.4	22	301	14.9	20	289	13.1	20	273	10.5										19	280	17.4	11	301	22.9	26	256	9.6
5,000	18	277	12.9	21	289	11.1	16	275	20.0	16	299	13.9	17	289	15.3	15	278	12.0										17	273	18.9				24	262	12.2
6,000	16	279	13.8	20	283	12.7	13	281	24.9	14	298	17.7	15	286	19.9	12	280	12.2										13	273	20.9				22	261	12.6
8,000	14	283	19.5	17	277	15.0																												19	266	15.9
10,000	14	263	8.8	12	279	17.2																												19	266	19.0
12,000																																		13	265	25.5

Altitude (meters) m.s.l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	28	235	1.4	28	315	1.7	21	273	3.1	28	321	0.2	28	76	1.1	23	249	1.5	28	23	0.5	25	152	0.6	28	7	0.8	27	106	2.5	27	215	1.4	24	246	1.2
500	--	---	----	--	---	----	21	263	3.6	--	---	----	28	250	1.6	23	267	3.0	--	---	----	25	231	2.0	28	333	.6	27	98	2.9	27	210	2.2	24	213	3.3
1,000	--	---	----	--	---	----	21	264	5.1	28	244	5.1	27	245	3.9	18	285	4.0	28	27	.7	18	250	5.0	28	187	2.2	26	82	2.1	23	269	2.9	22	234	4.8
1,500	--	---	----	28	315	1.6	21	280	7.8	27	264	10.2	26	257	7.0	18	289	7.5	28	301	.4	15	274	6.4	28	204	4.8	24	12	1.2	20	287	6.8	20	258	6.8
2,000	28	223	1.5	28	279	1.3	19	290	12.0	27	269	10.7	25	264	8.4	16	298	11.4	28	273	1.5	14	284	8.0	26	227	6.3	23	336	2.0	17	290	8.4	18	273	8.3
2,500	28	235	2.1	28	238	2.7	19	289	14.9	25	278	11.4	24	271	8.5	16	297	13.8	28	274	2.3	14	289	10.3	20	235	8.0	22	330	2.5	13	293	9.8	18	285	10.4
3,000	27	273	3.0	26	269	4.5	17	288	17.8	23	283	12.0	22	266	10.3	14	296	17.7	27	277	3.8	14	286	11.4	15	244	8.7	21	307	3.2	12	289	11.5	16	289	12.5
4,000	24	287	7.3	21	288	7.2	14	288	21.5	19	287	14.0	16	280	12.6	12	292	22.5	24	284	4.6	12	276	15.6	13	254	10.2	19	279	3.6				15	290	17.6
5,000	23	289	9.7	18	291	11.5	11	299	24.7	12	292	12.9	11	274	12.0				24	287	6.7	12	286	16.1	12	255	12.3	15	274	7.8				12	297	22.8
6,000	20	294	11.8	15	300	13.4	11	297	29.6										20	273	8.8	12	286	18.9				13	272	10.3				11	291	23.6
8,000	13	292	10.9																18	278	13.1															
10,000																			15	278	17.2															
12,000																			13	273	21.3															

Altitude (meters) m.s.l.	New York, N. Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	24	302	4.2	27	250	0.9	27	259	2.1	26	210	0.6	28	236	0.3	28	352	3.0	27	294	1.3	24	252	0.9	23	192	1.0	25	297	3.7	25	286	1.5	26	212	4.2
500	24	284	4.3	27	304	.4	27	244	1.6	26	248	1.6	28	202	.2	--	---	----	27	312	2.1	24	269	2.1	23	194	2.0	25	285	1.4	25	277	1.7	26	205	7.0
1,000	20	290	7.7	26	284	1.3	25	224	2.5	24	274	4.3	28	184	.5	28	351	3.0	27	305	4.5	20	259	5.3	22	214	3.5	25	157	.6	19	297	2.0	24	212	9.0
1,500	16	293	12.2	26	283	2.2	24	249	5.9	20	280	7.4	28	207	1.5	27	308	4.8	25	304	6.0	18	279	7.7	18	229	4.3	23	129	.3	17	307	5.6	18	214	9.9
2,000	14	289	14.4	25	280	3.2	22	267	9.3	19	276	9.6	27	212	1.4	24	297	7.5	25	298	8.1	16	285	10.2	17	247	4.4	22	295	.8	17	304	7.5	13	228	8.7
2,500	11	293	15.4	24	273	3.7	21	269	10.6	18	281	10.9	26	254	1.9	24	296	9.9	24	301	10.2	14	290	11.7	16	265	7.0	22	303	2.1	14	304	9.9			
3,000				23	272	4.7	21	274	11.6	18	285	12.2	25	267	2.9	22	288	11.1	24	303	12.5	14	289	13.1	15	272	7.9	22	296	2.6	14	298	12.0			
4,000				22	277	6.5	20	276	14.4	16	294	15.6	24	287	4.7	16	286	11.2	16	305	16.3	14	288	16.8	14	283	10.9	21	271	5.5	12	298	16.8			
5,000				20	277	8.7	18	286	13.9	14	296	18.1	24	299	6.7	10	284	15.3	11	308	21.7	13	290	19.3	13	277	12.9	19	283	6.9	11	294	22.2			
6,000				18	277	11.2	16	290	16.1	11	304	21.5	19	286	8.7							11	295	22.7	12	277	13.0	16	271	8.2						
8,000				13	277	10.8	12	283	20.3				15	284	11.0																					
10,000				10	268	8.8																														

Altitude (meters) m.s.l.	Spokane, Wash. (725 m.)			Washington, D. C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	25	185	3.2	23	266	2.8
500	--	---	----	23	260	5.0
1,000	25	205	6.5	23	269	7.4
1,500	24	223	9.1	23	281	10.6
2,000	20	235	9.8	17	279	12.9
2,500	18	241	9.6	14	281	15.1
3,000	17	251	9.7	13	286	17.0
4,000	14	270	14.6	10	296	21.3
5,000						
6,000						
8,000						
10,000						
12,000						

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

Table 22 — FEBRUARY 1950

Altitude (meters) m s.l	Albuquerque, N.Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N.Dak. (505 m.)			Brownsville, Tex. (7 m.)			Caribou, Maine (191 m.)			Charleston, S. C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			International Falls, Minn. (358 m.)			Little Rock, Ark. (80 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	28	27	2.0	28	139	3.3	28	65	0.5	28	115	3.0	28	313	3.7	28	213	1.1	28	65	0.8	28	11	0.8	28	315	0.6	28	258	1.7	28	247	0.5	28	67	0.5
500	--	---	---	--	---	---	--	---	---	27	145	6.5	28	304	4.7	28	232	3.5	28	193	1.8	--	---	---	27	259	2.9	27	261	4.9	28	239	.7	27	182	2.7
1,000	--	---	---	28	92	3.9	26	276	4.6	28	159	5.8	28	301	5.4	27	254	5.3	27	240	2.9	--	---	---	27	257	6.5	27	270	7.0	28	272	2.0	27	228	6.4
1,500	--	---	---	28	230	4.5	26	290	6.8	28	183	3.8	28	291	7.0	26	270	6.7	27	273	5.8	28	8	.8	27	263	8.9	26	277	8.4	28	297	3.6	26	239	8.9
2,000	28	330	4.9	28	253	6.6	25	293	8.1	28	212	3.2	28	287	8.3	24	271	7.2	27	272	7.9	28	272	1.0	27	270	11.3	26	274	10.5	28	304	6.1	26	253	6.7
2,500	28	302	5.2	28	267	7.8	24	292	9.2	28	239	3.5	28	280	9.6	20	269	10.2	27	272	10.1	28	227	2.6	26	280	13.1	26	274	13.2	28	299	7.5	26	259	13.4
3,000	28	280	7.0	28	272	8.4	23	292	11.0	28	253	4.7	28	277	10.9	20	273	12.8	26	281	12.5	28	247	4.2	26	272	15.0	26	272	14.8	28	300	8.7	25	270	12.9
4,000	28	274	9.1	28	271	11.6	23	294	12.8	27	266	7.9	27	271	14.4	17	269	15.3	26	280	15.6	28	277	7.1	26	274	17.7	25	274	17.5	27	300	12.6	24	265	16.8
5,000	28	285	10.3	27	272	12.5	18	300	15.8	26	262	12.0	26	271	16.1	11	262	15.4	26	279	17.8	28	285	9.9	23	273	20.7	21	273	18.5	26	296	15.4	24	264	19.3
6,000	28	280	12.3	24	270	12.7	17	300	19.6	26	261	14.4	24	269	18.3				25	275	20.5	28	283	12.8	21	279	22.9	18	277	21.2	25	298	17.0	19	266	17.8
8,000	22	273	12.8	17	276	17.1	12	295	16.9	22	262	19.4	20	273	23.3				18	270	20.2	24	290	14.6	14	277	25.3	13	276	22.5	22	292	20.7	15	274	22.8
10,000	21	280	15.8	17	282	17.6	11	307	20.8	22	260	17.4	15	258	24.7				16	262	22.3	18	288	17.1	10	283	30.0	11	282	26.7	18	284	19.8	15	290	15.8
12,000	17	276	20.0	11	265	27.5				12	262	29.1	13	259	21.6				11	285	26.7	10	291	18.3							15	295	19.6			
14,000	13	281	19.0										12	266	20.7																	10	300	16.2			
16,000	10	291	14.6																																	

Altitude (meters) m s.l	Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			New Orleans, La. (6 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S.Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P. R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	28	195	1.2	28	73	1.6	26	314	2.6	28	257	1.0	28	122	1.2	28	255	0.8	26	91	1.6	28	246	0.7	28	61	2.1	28	75	2.4	28	322	0.6	28	353	0.6
500	28	187	1.4	28	93	3.1	26	285	5.4	28	214	2.6	28	183	3.1	27	279	1.2	25	118	1.7	--	---	---	28	125	3.7	27	71	6.9	28	327	1.0	27	32	2.2
1,000	28	189	2.4	28	94	2.9	26	284	6.3	28	237	6.3	28	235	3.2	27	261	1.4	25	228	3.0	28	239	.7	28	170	5.8	27	78	7.3	28	307	2.4	27	46	2.2
1,500	28	213	4.6	28	79	1.3	26	276	9.0	26	262	7.8	27	250	4.8	28	246	2.2	26	262	5.4	28	291	4.3	28	207	6.0	27	78	6.6	28	297	4.5	28	20	1.7
2,000	28	222	6.7	28	3	.7	26	270	11.7	26	270	11.0	27	248	5.8	28	262	3.2	26	274	8.0	28	305	7.6	28	235	6.5	27	85	2.9	28	293	6.1	28	313	1.6
2,500	26	238	8.5	28	282	1.4	26	268	15.4	25	277	13.0	25	257	11.7	28	268	4.6	26	272	9.9	28	308	10.2	28	249	7.1	27	88	4.2	27	292	8.4	28	309	3.1
3,000	23	254	9.5	27	273	2.9	26	265	17.2	25	276	15.5	25	253	8.1	27	276	5.1	26	273	11.3	28	300	11.6	27	264	7.6	27	82	2.1	27	292	10.4	28	302	3.5
4,000	20	267	13.6	27	266	4.2	26	264	21.0	24	268	18.6	25	262	11.7	27	274	7.5	26	276	13.2	28	290	13.4	27	262	10.5	27	357	.6	25	297	12.3	27	299	5.4
5,000	18	275	15.2	27	273	6.4	24	268	24.9	22	269	20.3	25	259	14.0	26	281	9.3	26	271	14.0	28	292	14.9	27	266	14.0	28	309	2.0	25	299	14.6	26	282	7.7
6,000	18	274	17.2	26	278	10.4	22	268	26.4	21	265	23.1	20	266	18.4	25	275	10.3	26	271	15.4	26	291	16.0	28	268	16.9	27	285	5.3	23	296	16.1	25	287	9.4
8,000	11	279	20.3	22	278	19.3	17	270	28.8	12	276	24.0	15	271	29.6	21	192	12.4	22	268	17.4	23	282	18.2	24	263	25.4	26	278	15.3	18	271	15.3	25	279	12.7
10,000				19	275	27.2	10	262	30.5				15	272	25.4	15	299	14.5	21	265	24.8	21	284	23.1	24	268	19.8	25	267	25.6	16	268	20.9	21	289	13.5
12,000				15	269	30.3										11	283	13.2	17	266	28.6	15	285	19.3				24	262	29.6	11	256	21.1	19	274	16.2
14,000				11	277	28.1													13	270	25.9	10	291	24.3				22	276	22.5				16	271	14.2
16,000																			12	263	19.1							20	285	11.8						
18,000																												10	331	3.5						

Altitude (meters) m s.l	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	28	4	2.9	28	173	1.8	24	160	4.2
500	28	323	2.3	--	---	----	24	196	6.2
1,000	28	282	3.0	27	197	4.9	24	216	7.4
1,500	27	291	4.6	27	226	7.8	24	221	7.4
2,000	26	296	6.6	27	232	9.6	23	231	7.9
2,500	26	299	9.4	27	243	10.9	23	242	9.5
3,000	25	299	11.6	26	249	10.8	23	240	11.1
4,000	23	294	15.7	27	260	13.6	21	252	14.3
5,000	19	293	15.9	26	264	15.3	18	271	15.7
6,000	16	286	19.7	23	260	17.5	17	277	17.7
8,000	11	279	23.0	20	272	20.2	13	280	25.5
10,000				13	260	21.5			
12,000				10	272	21.6			

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

Note.--Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.

SOLAR RADIATION DATA

Table 30.--Solar radiation intensities, tabulated in langleys. FEBRUARY 1950

TABLE MOUNTAIN, CALIF.

Date	Sun's zenith distance: A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a.m.	1:30 p.m.
	Air mass: 3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
Feb.										*Mb.*	*Mb.*
2	----	----	----	1.50	----	----	----	----	----		
7	----	----	----	1.47	----	----	----	----	----		
8	1.14	1.23	1.33	1.46	----	----	----	----	----		
15	1.13	1.22	1.32	1.46	----	----	----	----	----		
18	----	----	----	1.42	----	----	----	----	----		
Averages	1.14	1.22	1.32	1.46	----	----	----	----	----		
Departures	-.03	-.04	-.05	-.04	----	----	----	----	----		

LINCOLN, NEBR.

	Air mass: 4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
Feb.											
5	0.94	1.06	1.20	1.33	----	1.35	1.22	1.06	----	1.1	1.9
6	.89	1.00	1.13	1.31	----	1.36	1.16	1.03	----	3.5	4.6
15	----	----	----	----	1.33	1.22	.94	.79	0.64	1.8	2.1
18	----	----	----	----	1.36	1.24	1.03	.90	.79	1.5	2.7
28	----	----	----	----	1.40	1.31	1.13	1.02	.89	2.1	1.9
Averages	.92	1.03	1.17	1.32	1.36	1.30	1.10	.96	.77		
Departures	+.02	+.02	+.02	-.02	-.12	-.03	-.11	-.04	-.13		

MADISON, WIS.

	Air mass: 4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
Feb.											
5	----	----	1.11	1.24	----	1.24	1.14	----	----	2.2	1.8
6	0.36	0.95	1.08	1.31	----	1.28	1.01	----	----	1.3	2.6
7	.95	1.04	1.15	1.22	----	----	----	----	----	1.7	3.3
14	.91	1.04	1.16	1.25	----	----	----	----	----	2.6	3.5
15	.76	.88	1.02	----	----	----	----	----	----	2.7	3.1
17	----	.66	.91	1.22	----	1.31	.91	----	----	1.3	3.5
24	.96	1.06	1.19	1.37	----	1.35	----	----	----	.6	.7
27	----	----	.90	1.16	----	1.06	----	----	----	1.2	1.9
28	----	----	----	1.26	----	----	----	----	----	6.4	5.1
Averages	.89	.94	1.07	1.25	----	1.25	1.02	----	----		
Departures	+.04	-.06	-.07	-.07	----	-.06	-.14	----	----		

Extrapolated

BOSTON, MASS.

	Air mass: 4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
Feb.										*Mb.*	*Mb.*
3	0.90	1.09	1.25	1.43	----	1.46	1.29	1.13	----	3.1	1.9
20	.86	1.01	1.16	1.39	----	1.40	----	----	----	1.1	.9
21	1.03	1.15	1.23	1.44	----	----	----	----	----	.6	.7
Averages	.93	1.08	1.23	1.42	----	1.43	1.29	1.13	----		
Departures	+.24	+.26	+.30	+.28	----	+.23	+.23	+.30	----		

BLUE HILL, MASS.

	Air mass: 4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
Feb.											
3	0.93	1.09	1.26	1.47	----	1.47	1.15	1.17	1.07	3.1	1.7
4	.84	.94	1.04	1.20	----	----	----	----	----	2.1	2.8
8	.96	1.09	1.20	1.24	----	----	.99	.84	.74	1.1	2.0
12	.92	----	----	----	----	----	----	----	----	4.5	3.3
18	----	----	----	1.25	----	----	----	----	----	3.2	3.1
20	.94	1.06	1.13	1.37	----	1.42	----	----	----	.8	.7
21	1.02	1.14	1.27	1.43	----	----	----	----	----	.4	.5
25	.91	1.03	1.14	1.33	----	1.42	1.25	1.14	1.03	1.7	1.1
26	1.02	1.11	1.23	1.35	----	----	----	----	----	1.3	1.3
27	1.00	1.11	1.20	----	----	----	1.23	1.06	.94	.7	.9
28	1.02	1.14	1.24	1.35	----	----	----	----	----	.9	1.5
Averages	.96	1.08	1.20	1.33	----	1.44	1.21	1.05	.95		
Departures	+.05	+.06	+.09	+.04	----	+.15	+.97	+.95	+.05		

RATIO, BOSTON/BLUE HILL ON COMPARABLE DATES

	0.97	0.98	0.99	1.00	---	0.99	0.96	0.97	---	---	---

The mean values of normal incidence radiation at Boston, Mass., during February 1950, as indicated in Table 30, were remarkably far above the average for February at this station. These high values were apparently due to unusually clear atmosphere on the three days of record, a not too common winter phenomenon at this industrial city. Substantiation of these values is indicated by a comparison of the Blue Hill, Mass., records on comparable dates, after due consideration is given to the normally clearer atmosphere at Blue Hill.

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface (langleys).

An explanation of Tables 30 and 33 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

Table 31.--Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during February, 1950 (Jan. 29-Feb. 25)

Date	29	30	31	1	2	3	4	Mean	5	6	7	8	9	10	11	Mean	12	13	14	15	16	17	18	Mean
Langleys	120	105	25	88	39	587	503	209	135	43	95	490	118	128	29	148	487	124	47	29	88	96	231	158
Date	19	20	21	22	23	24	25	Mean																
Langleys	71	605	584	63	34	441	594	342																

Table 32.--Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during February, 1950 (Jan. 29-Feb. 25)

Date	29	30	31	1	2	3	4	Mean	5	6	7	8	9	10	11	Mean	12	13	14	15	16	17	18	Mean
Langleys	36	35	22	70	39	60	54	45	75	35	52	52	20	57	17	44	37	50	34	26	67	77	79	53
Date	19	20	21	22	23	24	25	Mean																
Langleys	47	92	89	47	24	98	100	71																

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

SOLAR RADIATION DATA

Table 33.--Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. FEBRUARY 1950

Date 1950	Honolulu, T.H.	Pearl Harbor, T. H.	La Jolla, Cal.	Riverside, Cal.	Nashville, Tenn.	Fresno, Cal.	Davis, Cal.	Washington, D.C.	Columbia, Mo.	Soda Springs, Cal.	Seabrook, N.J.	Grand Lake, Colo.	Salt Lake City, Utah	New York, N.Y.	State College, Pa.	Lincoln, Nebr.	Newport, R. I.	Put-in-Bay, Ohio	E. Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Amherst, Mass.	Lynn, Mass.	Ithaca, N. Y.	Twin Falls Idaho	Albany, N. Y.	E. Lansing, Mich.	Madison, Wisc.	Portland, Me	Toronto, Ontario	Ottawa, Ontario	Caribou, Me.	Summit, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alas.	Aklavik, Mackenzie
Jan. 29--	527	504		93	64	213	346	198	43	158	185	245	282	229	72	277	69	75	71	122	133	94	155		294	71	25	251	67	52	31	23	225	232	133	---	11
Jan. 30--	557	556		297	36	412	341	32	126	126	27	124	251	25	89	164	84	135	87	126	95	117	284		166	112	105	114	106	139	214	214	242	232	136	31	5
Jan. 31--	411	439		334	42	332	327	62	79	350	57	167	294	81	35	257	42	114	35	39	20	42	42		339	241	200	265	63	98	129	85	220	238	99	32	12
Feb. 1--	489	467		288	48	353	380	20	76	390	31	269	236	240	53	304	75	111	83	132	134	124	181		336	135	230	283	170	174	277	286	241	210	149	20	12
Feb. 2--	495	451		268	32	356	371	117	313	396	105	385	308	19	87	339	48	70	49	63	47	67	47		326	73	101	260	76	39	93	250	249	266	186	31	12
Feb. 3--	399	373		335	373	270	73	328	340	113	328	374	230	111	250	308	335	327	309	329	291	321	343		301	273	255	298	293	266	244	259	258	236	179	58	19
Feb. 4--	401	376		223	256	43	72	286	336	46	268	340	174	87	274	301	300	327	280	302	263	196	306		109	166	271	293	273	258	248	192	68	145	165	61	47
Averages	468	452		263	122	283	273	149	189	230	143	272	254	113	123	278	136	166	130	159	140	137	194		267	153	169	252	150	147	177	187	215	223	150	39	17
Departures	+78	+86		+10	-53	+77	+64	-54	-20	-6	---	+34	+34	-61	-29	+62	-75	-3	-75	-54	-36	---	---		+73	---	+16	+63	-1	+7	---	---	+56	---	---	+2	--
Feb. 5--	395	234		192	309	281	155	308	122	117	309	99	175	246	259	130	214	149	137	161	150	237	196		257	282	107	93	298	159	221	290	107	219	129	48	51
Feb. 6--	101	115		92	63	289	220	68	114	172	46	101	231	22	14	299	79	51	89	84	73	64	84		130	77	29	169	81	24	120	156	98	208	129	49	50
Feb. 7--	294	267		269	246	388	314	69	211	407	40	198	145	30	169	93	88	125	58	134	140	253	174		317	229	260	66	287	276	302	308	109	84	160	56	14
Feb. 8--	355	249		317	171	298	279	330	25	410	334	397	362	22	337	96	335	201	249	307	257	313	287		308	338	108	52	331	242	300	320	74	247	73	70	30
Feb. 9--	343	226		273	50	261	201	88	271	327	40	374	342	76	33	337	39	124	59	45	49	29	113		259	37	78	273	43	144	91	82	74	214	199	80	22
Feb. 10--	479	422		153	159	215	182	28	278	158	57	370	164	172	94	330	153	137	142	179	160	179	193		151	192	122	106	227	80	302	316	189	274	185	68	24
Feb. 11--	403	343		360	184	268	341	317	187	446	207	247	123	145	185	155	43	345	40	49	22	83	37		328	157	161	324	37	257	106	136	146	270	106	108	37
Averages	339	265		237	169	286	242	172	173	291	148	255	220	102	156	206	136	162	110	137	121	166	155		250	187	123	155	186	169	206	230	114	217	140	69	33
Departures	-51	-79		-59	-16	+26	-3	-39	-61	-8	---	-31	-28	-71	-13	-42	-78	-25	-89	-82	-51	---	---		+50	---	-44	-50	+6	-4	---	---	-38	---	---	+12	--
Feb. 12--	183	168		398	157	385	332	189	21	422	244	250	360	93	177	10	331	155	301	359	309	303	370		334	296	109	102	291	63	286	172	200	208	242	---	27
Feb. 13--	424	254		385	169	387	308	30	27	342	21	435	263	412	13	133	115	28	122	173	123	103	145		297	107	51	66	235	62	243	317	97	216	145	85	41
Feb. 14--	470	480		356	173	370	324	36	36	384	38	246	111	318	23	284	67	105	78	66	61	82	69		233	77	22	62	126	13	96	388	122	280	180	84	34
Feb. 15--	350	441		368	72	385	316	200	281	424	57	358	325	38	98	400	52	53	40	41	25	49	35		307	47	93	196	46	48	88	146	152	282	182	86	97
Feb. 16--	598	548		377	380	388	254	82	414	234	122	422	282	153	169	374	166	137	127	123	66	183	113		90	178	131	277	173	149	97	231	105	260	133	134	122
Feb. 17--	385	386		381	390	333	361	162	389	441	161	388	364	247	135	327	149	236	128	157	106	258	205		348	129	277	344	175	187	203	247	175	147	144	153	122
Feb. 18--	475	467		377	338	402	350	289	261	438	242	446	374	403	267	404	254	282	342	221	161	219	240		355	133	148	98	338	83	175	389	295	291	144	134	119
Averages	412	392		377	240	378	321	141	204	384	126	363	297	238	126	276	162	142	163	163	122	170	168		280	138	119	164	198	86	170	270	164	241	167	113	80
Departures	+10	+34		+51	+19	+77	+28	-86	-48	-14	---	+39	+12	+40	-53	+18	-81	-76	-64	-72	-62	---	---		+23	---	-78	-63	-8	-78	---	---	+22	---	---	+39	--
Feb. 19--	212	219		380	289	322	326	274	415	370	112	444	361	346	126	385	125	166	---	105	77	122	93		312	123	182	209	99	266	221	136	100	273	193	---	124
Feb. 20--	195	183		181	424	421	355	431	396	453	419	298	199	423	424	361	433	244	367	428	383	416	411		261	412	290	268	275	371	391	297	210	271	250	133	115
Feb. 21--	603	570		359	296	391	373	311	40	450	318	202	369	259	217	44	420	91	350	429	395	398	454		354	388	58	39	404	71	362	385	97	327	130	131	167
Feb. 22--	592	501		343	53	403	359	86	305	453	76	231	378	220	40	418	60	56	48	87	69	130	101		330	187	100	149	132	156	341	392	122	288	114	---	66
Feb. 23--	569	347		272	430	398	346	335	377	365	215	349	306	323	216	114	33	371	31	51	48	82	55		233	73	300	323	76	286	181	134	175	357	262	64	69
Feb. 24--	325	358		337	386	405	348	229	306	371	265	180	267	406	116	271	325	206	---	360	319	185	336		229	200	328	411	275	154	135	361	76	386	190	125	94
Feb. 25--	603	508		396	364	425	308	345	399	469	390	488	409	441	330	298	446	331	409	453	415	414	460		372	379	349	415	422	340	412	272	91	382	228	149	81
Averages	443	384		324	320	395	345	287	320	419	256	313	327	346	210	270	263	209	241	273	244	250	273		299	252	229	259	241	235	292	282	124	326	195	121	102
Departures	-6	-11		+1	+86	+116	+40	+23	+54	+36	---	-44	+8	+116	-6	-8	-1	-17	-22	+4	+19	---	---		+32	---	+28	+10	+14	+49	---	---	-65	---	---	+28	--

Accumulated Departures January 1 to February 25, 1950

	-189	+217		-392	-91	+2569	+420	-1295	-189	+133	---	-238	+28	-322	-987	+133	-2632	-994	-2674	-2380	-1148	---	---		+343	---	-1274	-651	---	-546	---	---	-238	---	---	+630	--

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

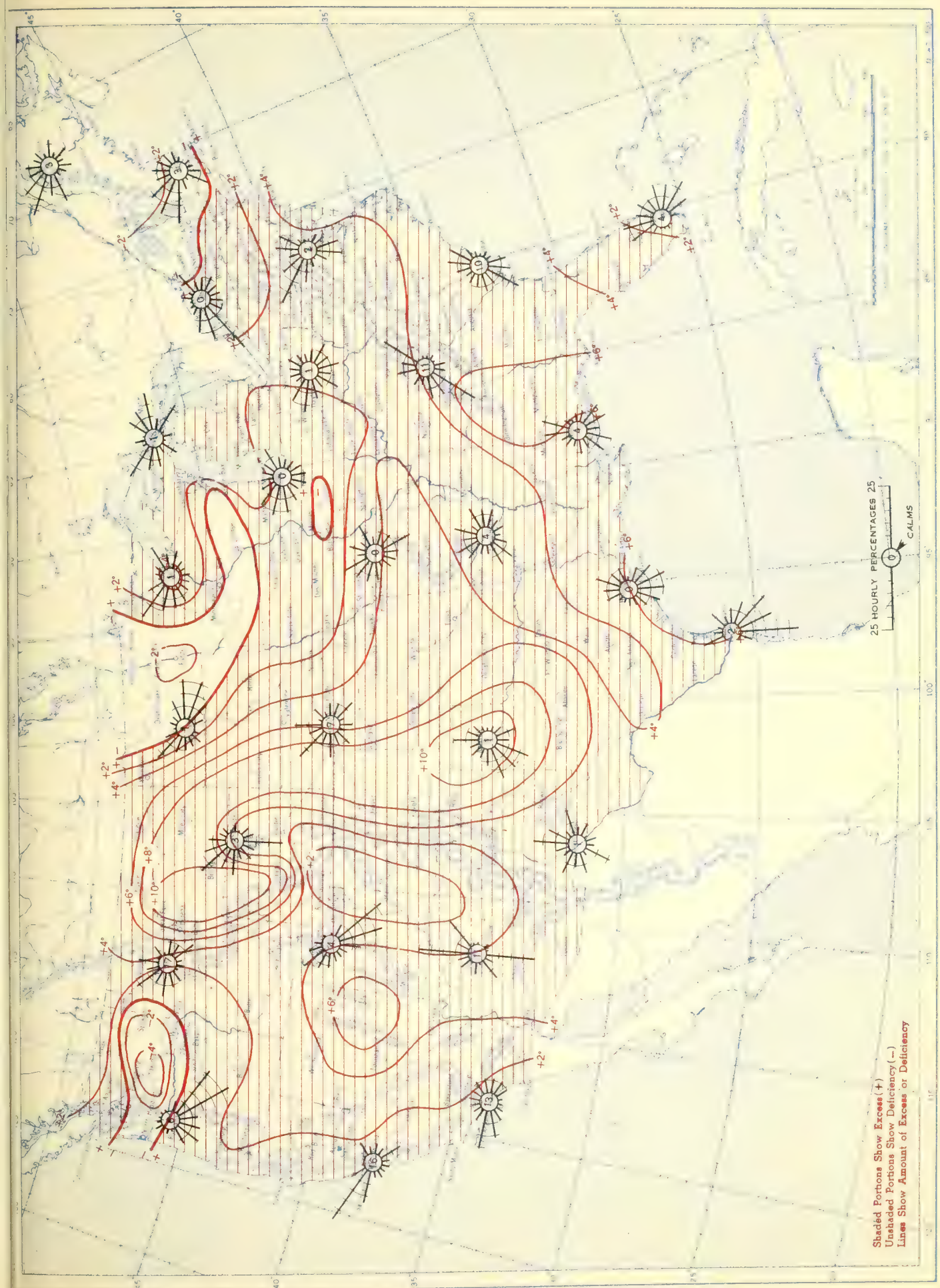
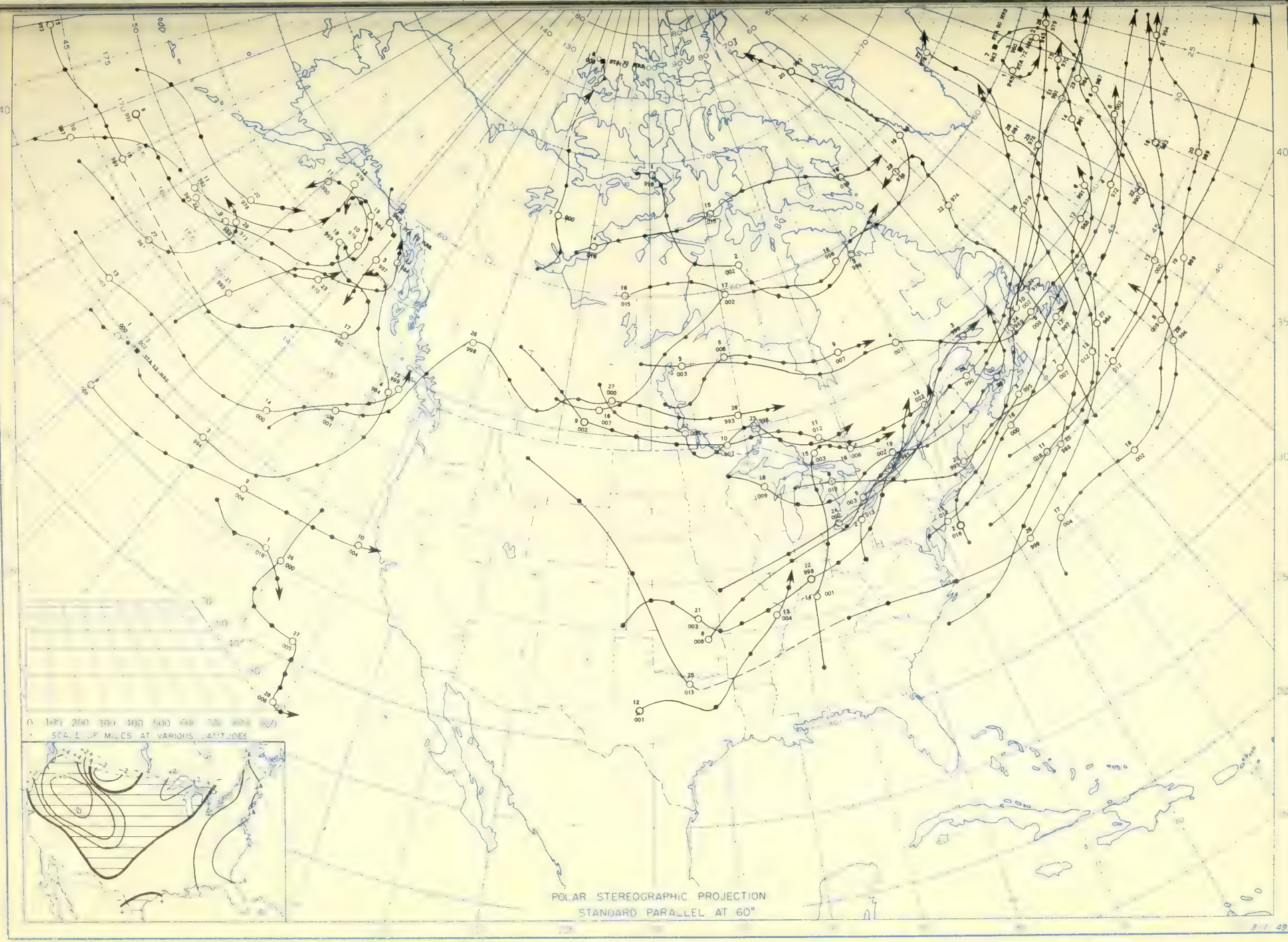

25 HOURLY PERCENTAGES 25
CALMS
Shaded Portions Show Excess (+)
Unshaded Portions Show Deficiency (−)
Lines Show Amount of Excess or Deficiency

Chart II. Tracks of Centers of Anticyclones, February 1950. (Inset) Departure of Monthly Mean Pressure from Normal





Circle indicates position of cyclone at 7:30 a. m. (75th meridian time) Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, February 1950



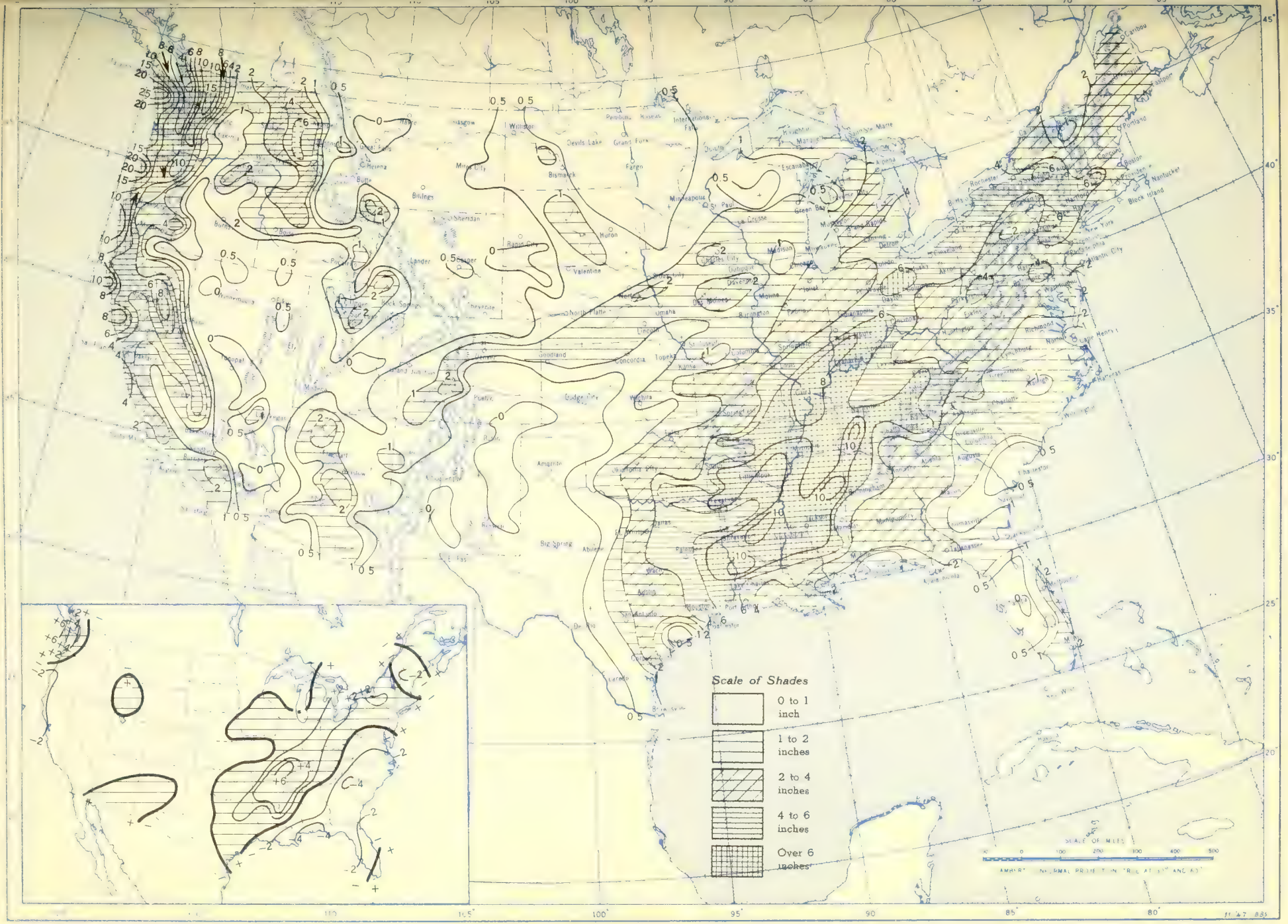
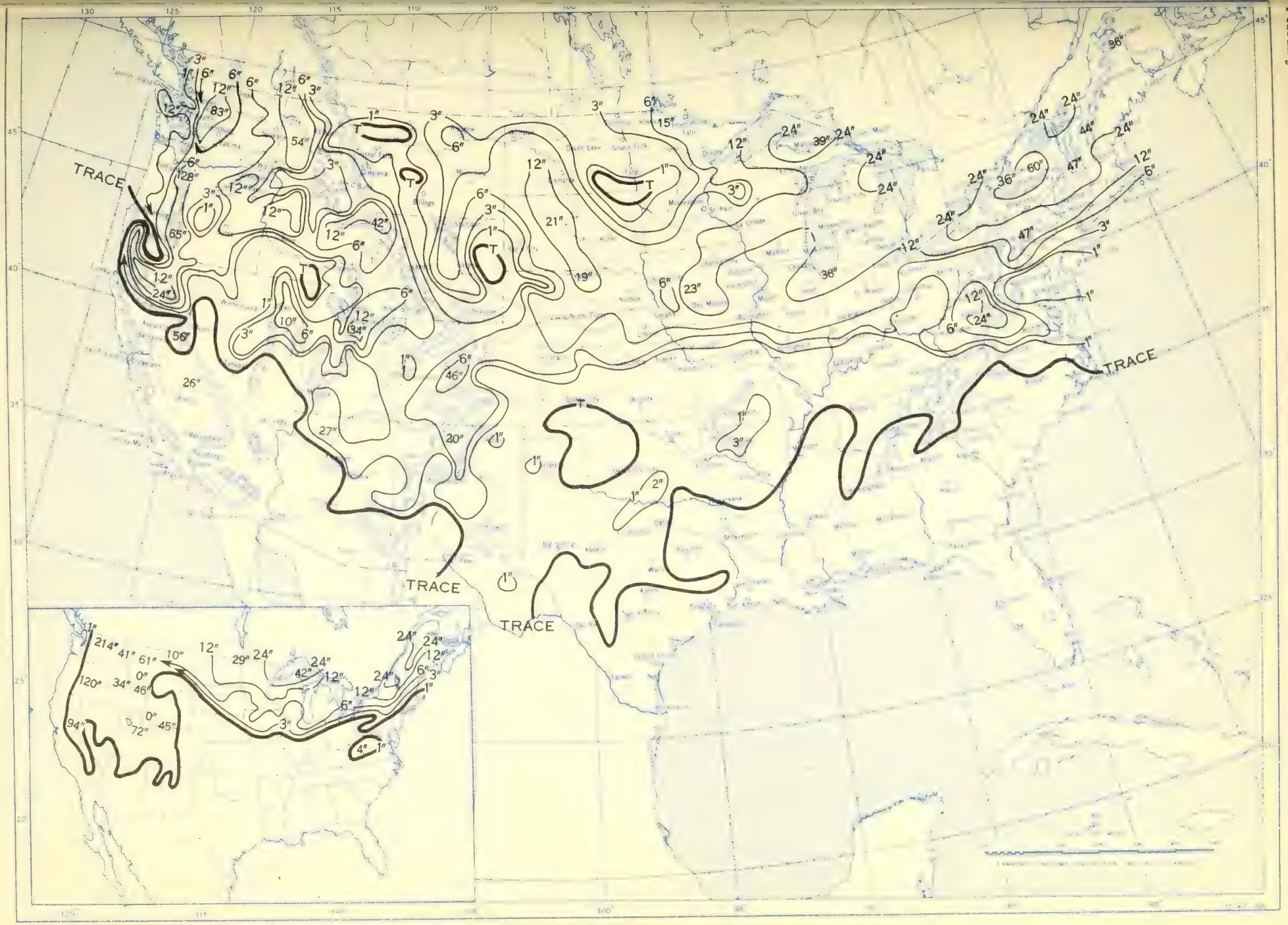
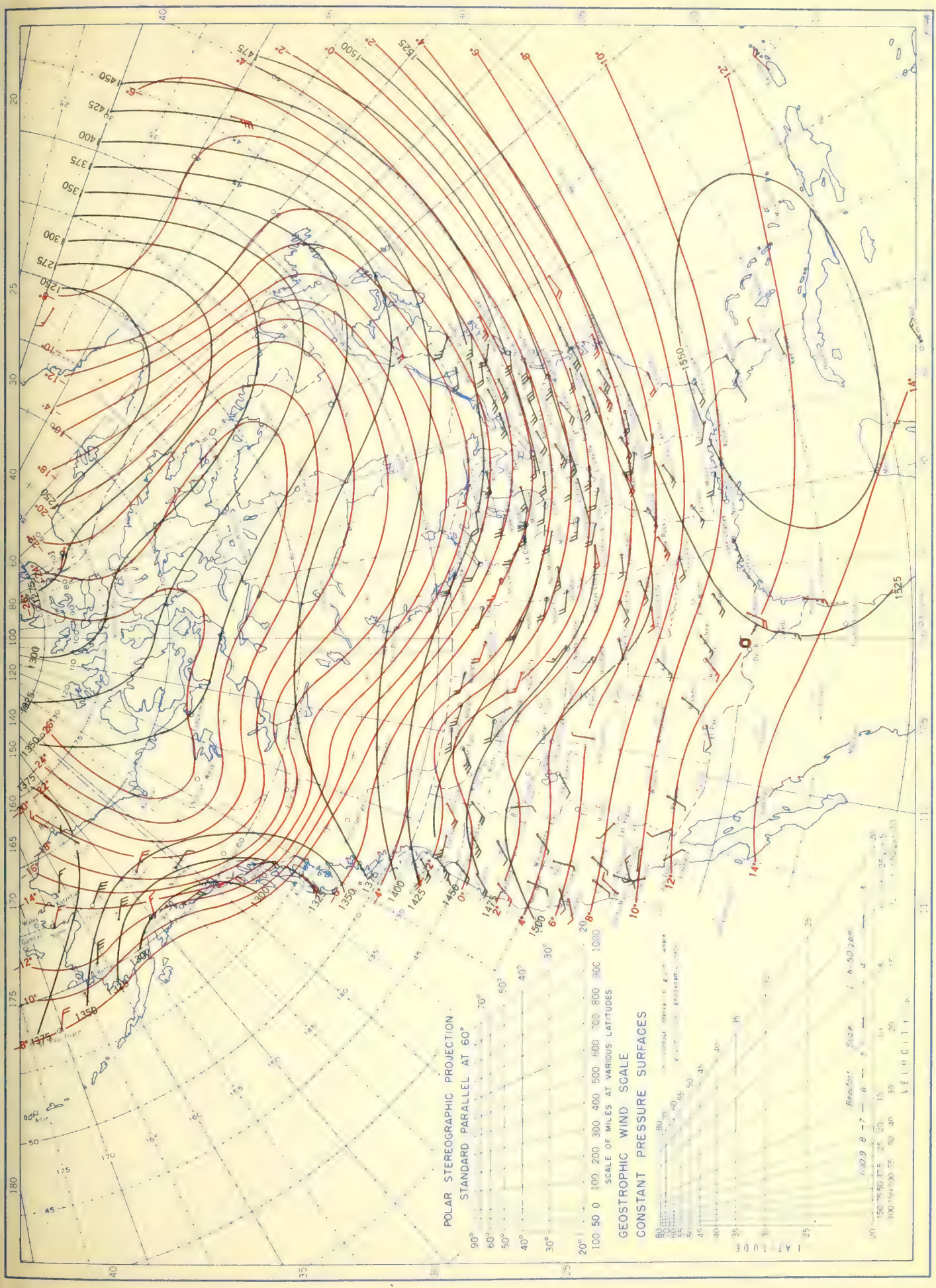

Scale of Shades
0 to 1 inch
1 to 2 inches
2 to 4 inches
4 to 6 inches
Over 6 inches

Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., February 1950

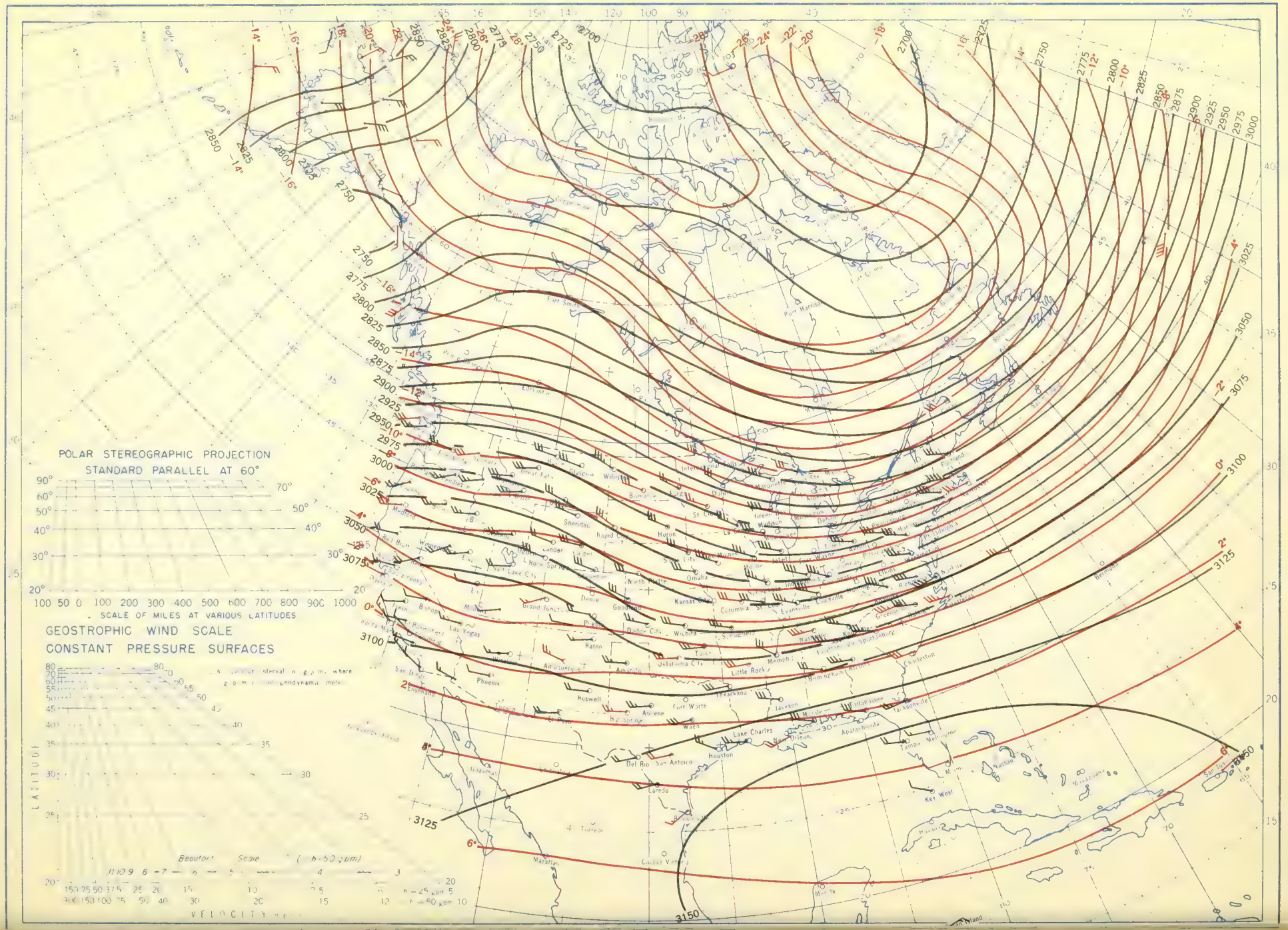


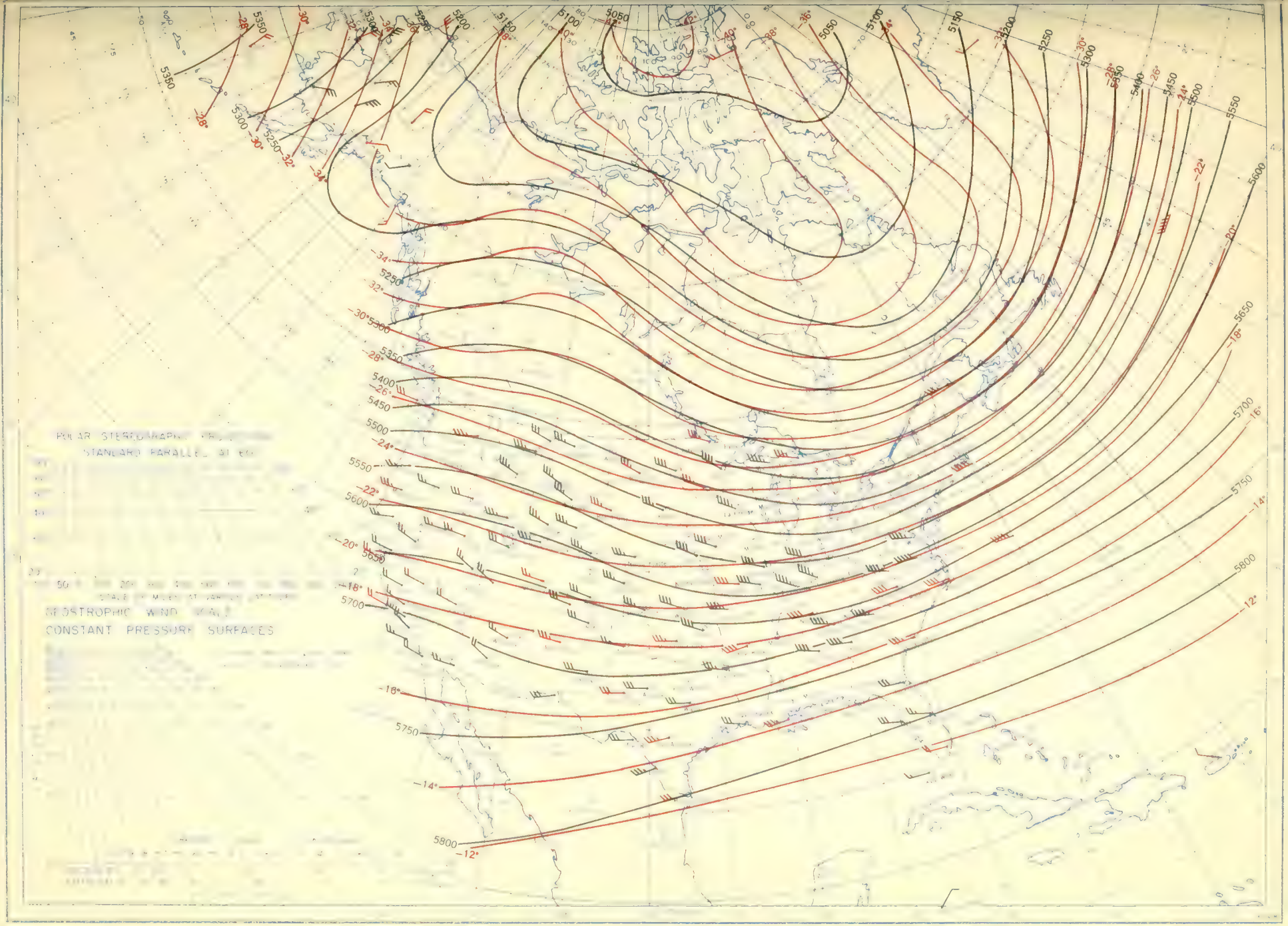

TRACE
TRACE
TRACE
TRACE



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

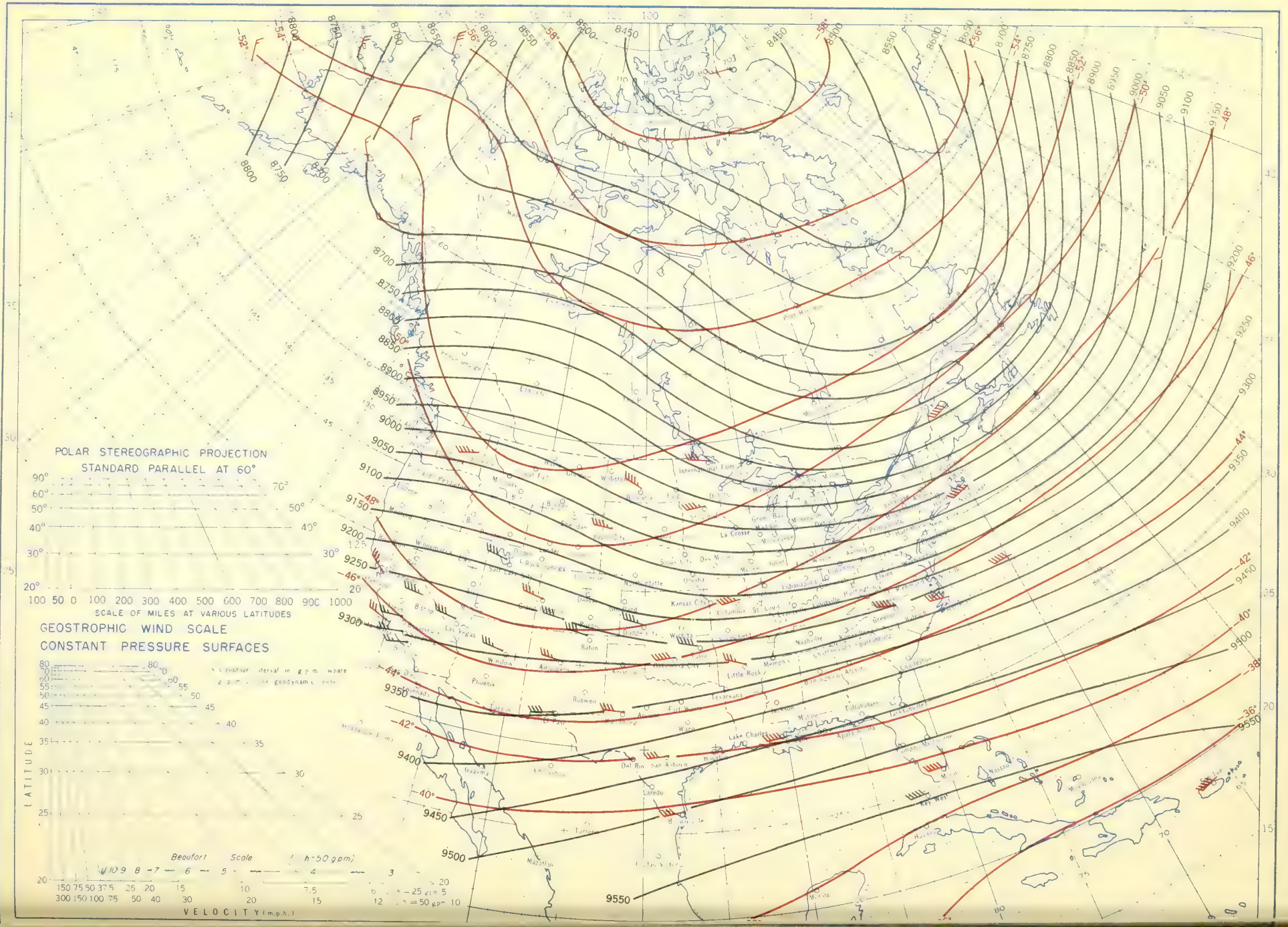
Chart IX, February 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)





Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, February 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



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U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

MARCH 1950
Volume I No. 3

WASHINGTON: 1950

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SURFACE DATA Page

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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA
NATIONAL SUMMARY

Volume I No. 3

MARCH 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

The weighted average March temperature for the entire country was 40.4° or 2.5° lower than the mean for the last 58 years. Temperatures averaged slightly above normal in the lower peninsula of Florida, the extreme Southwest, and at a few stations along the central Atlantic Coast; but below elsewhere with departures exceeding 4° in northern New York and New England and from 4° to over 6° in extreme north-central areas.

The weighted average March precipitation for the United States was 2.34 inches, somewhat less than the 58-year mean of 2.44 inches. Totals were above normal at most stations in the northern one-third of the country, being more than twice the normal along the northern Border westward from North Dakota. With the exception of the upper Peninsula of Florida and a narrow belt along the southeastern coast, totals were subnormal in the southern two-thirds with much of the lower Great Plains and Southwest receiving only 25 percent or less of their normal amounts.

At many stations east of the Mississippi River the first week was colder than any week during the preceding winter. At the beginning of the month a cold polar air mass moved southward and eastward from extreme north-central areas preceded by strong winds and light to heavy snow in northern districts and light to heavy rains in the South. Blizzard conditions were experienced at a number of northeastern stations the worst occurring in Syracuse, N. Y. and vicinity where these conditions prevailed for more than 2 days and left a 24-inch snowcover with 10- to 15-foot drifts which disrupted traffic and forced many schools to close.

On the morning of the 3d minimum temperatures fell below zero at most interior stations of New York and New England and as far south in the Appalachians as the central portions, and below freezing almost to the Gulf with scattered frosts reported as far south as central Florida. During this cold spell new March low temperature records were set at many stations in New York and New England, among these being -16.3° at Syracuse, N. Y. and -10.1° at Eastport, Maine on the 4th. Extreme minima as low as -34° were recorded in both sections.

After 2 days of severe cold weather in north-central areas, southerly winds caused rapidly rising temperatures throughout the Great Plains, maximum temperatures rising above 70° as far north as Nebraska and Iowa on the 5th and 6th. The heavy snowcover in extreme north-central areas was greatly reduced and North Dakota reported mostly bare ground in the west and many bare spots in central portions. Several dust storms occurred in the western portions of the Great Plains where the top soil had become very dry.

A disturbance which moved inland over Washington on the 5th caused heavy rains in the western portion of that State that resulted in brief floods. Its southeastward movement across the northern Rockies on the 6th was marked by high winds and light to heavy precipitation. Gaining great intensity as it moved into the Great Plains, it reached eastern Nebraska early on the morning of the 7th where it curved northeastward corssing the Great Lakes on the 8th. Its passage across the Great Plains on the 7th was preceded by rain and glaze, the glaze being especially severe in portions of Nebraska, North Dakota, and Minnesota. The rain turned to snow and sleet that was blown by gale winds with gusts estimated up to 100 m.p.h. This was described as one of the worst winter storms of all time in the eastern Dakotas. Damage was widespread but heaviest in Nebraska and South Dakota, total damage for the two States being somewhat less than $5,000,000.

With the passing of this storm which brought heavy precipitation to northeastern sections on the 8th, cold Canadian air began moving into the Great Plains and by the 10th had overspread the entire area east of the Rockies. Temperatures had fallen to sub-zero levels in the northern Plains and below freezing minima extended to north-central Texas by the morning of the 8th, to southern Louisiana on the morning of the 9th, and to northern Florida on the morning of the 10th with scattered light frosts occurring in the interior of southern Florida.

A new intrusion of cold air began moving into the Northwest on the 10th and by the end of the second week high pressure centered over the central Rockies and south-central areas covered the entire country causing minima to fall below freezing everywhere except in the Southeast, and at stations in the extreme South and along the southwestern coast. Light to heavy frost occurred throughout California's Great Valley, and Fresno recorded its lowest temperature for March, 27.7°. Except at stations along the southwestern Border and along the Atlantic Coast south of New England, average temperatures for the week were below normal with departures ranging up to more than 18° in north-central areas.

This second intrusion of cold air was preceded by light to moderate to locally heavy precipitation, occurring mostly as snow and some glaze in northern areas on the 10th and 11th and rain in southern areas on the 11th and 12th. Heaviest rains that totaled 6 inches or more for the week fell in a belt extending from the southern portion of the Appalachians through southern Arkansas.

During the third week the passage of numerous low-pressure areas and much frontal activity resulted in frequent precipitation in the northern and eastern sections, while frequent strong winds and fluctuations of temperature were general. A rising temperature trend was checked in the East by an intrusion of cold Canadian air mass on the 18th and 19th. Weekly average temperatures were below normal in east and central areas and at some stations in the Northwest, but below normal in the Rocky Mountain States. Below freezing minima occurred at least once at all stations except those in the extreme South and along the West coast. Heavy precipitation occurred along the central Gulf Coast on the 16th with 24-hour amounts up to 4 inches. On the same date 1 to 6 inches of snow fell in the Ohio Valley and in Virginia and

Maryland, and on the 18th and 19th Kansas and Nebraska received 1 to 6 inches.

General windy weather prevailed during the remainder of the month. It was hot and dry in the western portion of the lower Great Plains, but in most other sections frequent light to occasionally heavy precipitation and fluctuating temperatures that averaged near normal characterized the period.

On the 23d and 24th a minor depression, which had moved up the Atlantic coast, gained moderate intensity over the Northeast and heavy precipitation with 24-hour totals of 1 to over 2 inches fell at many stations in the Middle Atlantic and New England States. Up to 16 inches of snow fell at a few mountain stations in eastern Pennsylvania.

On the 26th and 27th the second severe storm of the month crossed the central and northern Great Plains, establishing new low pressure records at several stations. Gale-force winds with gusts exceeding 80 m.p.h. caused widespread property damage and some wheat in the western Plains was damaged by dust. Total damage, however, was much less than that caused by the storm on the 6th and 7th. Snow, sleet, and glaze occurred in northern areas, snowfall being especially heavy in North Dakota where transportation was blocked by heavy drifting. Strong southerly winds in advance of the storm caused maximum temperatures to rise as high as 80° in the Lake region and Midwest on the 25th and 26th.

On the 27th severe thunderstorms occurred from the Lake region to the Gulf in advance of a cold front moving eastward from the Great Plains. In Jackson, Miss. thunderstorm wind gusts up to 100 m.p.h. injured 2 persons and caused $100,000 property damage. Tornadoes occurred in Arkansas, Louisiana and Mississippi. Line squall winds caused widespread damage in the Southeastern States on the same date, the total damage in Alabama exceeding $1,000,000.

The center of this storm filled after moving over the Lake Region, but its associated cold front continued eastward, preceded by moderate to heavy rains which became light to moderate east of the Appalachians, reaching the Atlantic Coast on the 29th.

Cold air following in the wake of the storm brought below-freezing minima and frost southward to northern Texas on the 29th, to central Louisiana and Mississippi on the 30th, and almost to the East Gulf coast on the 31st when frost occurred in northern Florida and minima in the 40's in southern Florida.

March weather was generally unfavorable for agriculture. Wheat was in poor condition in the western portion of the lower Great Plains due to continued drought; and in north-central areas, the lower Mississippi Valley, and in much of the Southeast the season was generally about 2 weeks late due to cold, wet weather.

CONDENSED CLIMATOLOGICAL SUMMARY

Table I — MARCH 1950

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes: Station	Highest	Date	Station	Lowest	Date	Average	Departure from normal	Monthly extremes: Station	Greatest	Station	Least
	°F.	°F.		°F.			°F		In.	In.		In.		In.
Alabama	53.3	-2.6	2 Stations	88	†26	Valley Head	19	†2	6.69	+0.95	Carbon Hill	11.38	Newton	3.54
Arizona	52.0	+1.2	Cortaro 3SW	96	30	Alpine	- 1	13	.49	-.60	Maverick	1.85	3 Stations	.00
Arkansas	49.2	-3.2	3 Stations	85	†24	Harrison	11	14	4.20	-.56	Warren	12.13	De Queen	.92
California	51.0	-.7	2 Stations	97	31	Boca	-18	12	2.72	-.20	Klamath	18.87	7 Stations	.00
Colorado	34.2	-.3	Eversoll Ranch	85	25	Taylor Park	-37	13	.64	-.69	Marshall Pass	5.19	3 Stations	.00
Florida	65.2	+0.0	2 Stations	93	†28	Secotan	27	10	4.93	+.67	Chipley 3E	10.38	Everglades	.22
Georgia	53.7	-3.3	Brooklet 1W	90	27	Blairsville Exp. Sta.	18	†10	5.90	+.92	Ellijay	9.60	Cave Springs 4SSW	1.48
Idaho	34.0	-1.7	Parma Exp. Sta.	80	31	Island Park Dam	-25	12	2.83	+1.15	Roland W. Portal	10.78	Grand View	.16
Illinois	37.4	-3.5	2 Stations	83	26	Stockton	8	2	2.37	-.82	Golconda Dam	6.15	New Boston 2NW	.45
Indiana	36.9	-3.9	Brookville	79	27	Greensburg	-6	2	3.32	-.43	West Boden Springs	5.20	Whiting	1.00
Iowa	3.07	-5.0	Clarinda	80	26	Marshalltown	-20	8	1.03	-.66	Waukon	3.14	Sigourney	.21
Kansas	41.1	-3.0	2 Stations	91	25	St. Francis	-2	13	.60	-.81	Mound City	1.88	Elkhart	.00
Kentucky	43.1	-3.3	Pikeville	88	27	Covington WB AP	7	2	3.74	-1.00	Lovelaceville	6.27	Lockport Lock #2	1.63
Louisiana	57.9	-2.6	Bogalusa	88	26	Chatham	25	9	5.50	+.51	Buras	10.97	Shreveport	2.18
Maryland-Delaware	39.9	-3.0	3 Stations	81	†27	Friendsville	-1	19	4.29	+.71	Sines Deep Creek	6.00	Ocean City	2.61
Michigan	25.3	-4.3	Battle Creek	65	27	Kenton U.S.Forrest	-33	3	2.50	+.46	Hillsdale	4.48	Frankfort	.85
Minnesota	20.5	-6.1	Canby	64	6	Roseau P.Pl.	35	2	2.02	+.78	Bird Island	4.86	Otter Tail	.40
Mississippi	54.3	-2.6	2 Stations	86	†12	Pontotoc	21	14	6.81	+.84	Cleveland	11.59	Belzoni	3.35
Missouri	40.9	-3.1	Hannibol W.W.	88	26	Conception	3	†2	2.21	-1.06	Sikeston	6.80	Memphis	.31
Montana	26.3	-4.2	2 Stations	69	4	2 Stations	-30	†11	1.37	+.47	Heron 2SW	6.79	Sidney	.28
Nebraska	33.1	-3.5	Oxford	82	25	do	-18	12	.97	-.15	O'Neill	2.85	2 Stations	.24
Nevada	40.8	-2.7	Indian Springs	87	31	Ely WB AP	-6	12	.84	+.15	Jarbidge	4.08	4 Stations	.00
New England	27.4	-4.9	Greenville N.H.	72	29	West Burke, Vt.	-34	4	3.38	-.19	Pinkham Notch, N.H.	6.68	Lemington 3NE, Vt.	1.04
New Jersey	36.8	-2.6	Belleplain	77	27	Runyon	-3	4	4.35	+.60	Boonton	8.20	New Milford	2.99
New Mexico	45.2	+.9	Hagerman	90	24	Selsor Ranch	-6	13	.15	-.61	Chama	1.64	36 Stations	.00
New York	26.5	-5.7	Shrub Oak	73	29	2 Stations	-34	4	3.48	+.42	Richland	8.49	Bushnellsville	1.34
North Carolina	48.1	-1.9	Lake Michie	88	28	Mount Mitchell	-2	2	4.01	-.19	Highlands	9.99	Louisburg	1.74
North Dakota	19.2	-4.6	Drake	59	5	2 Stations	-31	2	1.38	+.59	New England	3.64	Bottineau	.06
Ohio	36.1	-2.9	5 Stations	87	†27	Chardon	-3	2	2.75	-.70	Painesville Hwy.Dept.	5.50	Columbus WB City	1.31
Oklahoma	48.9	-1.7	Bearer	92	25	Kenton	1	13	.48	-1.69	Idabel	2.62	13 Stations	T
Oregon	39.2	-2.6	Riddle 2NNE	80	31	2 Stations	-3	†11	4.38	+1.48	Valsetz	25.18	Redmond CAA AP	.17
Pennsylvania	33.0	-4.7	Uniontown	87	27	Bradford 4W	-21	4	4.58	+1.08	Cogan Station	8.20	Austinburg	1.21
South Carolina	51.7	-3.2	2 Stations	88	†26	Caesars Head	16	2	4.13	+.16	Sassafras Mtn.	7.41	Walterboro	1.85
South Dakota	24.4	-6.9	do	74	†5	Deerfield Dam	-31	12	1.87	+.76	Spearfish AP	5.88	Castlewood	.63
Tennessee	46.6	-2.9	Rogersville	84	27	Monterey 1E	11	2	5.62	+.26	Lookout Mountain	9.28	Portland	2.33
Texas	56.7	-1.8	Rio Grande	107	27	Vega	3	13	.61	-1.38	Center	6.04	34 Stations	.00
Utah	38.6	+.4	Hite	83	31	Silver Lake Brighton	-13	13	1.02	-.34	Alta	11.45	Emery	T
Virginia	42.5	-3.3	Clarksville	87	28	Big Meadows	0	3	3.34	-.28	Blacksburg	6.63	Hog Is.Little Machipongo	1.59
Washington	38.8	-3.0	3 Stations	67	†30	Deer Park	-8	12	5.48	+2.17	So.Olympic Tree Fm.	24.29	White Swan	.70
West Virginia	38.9	-3.6	Huntington WB City	89	27	2 Stations	-9	†2	3.71	-.17	Pickens No.2	8.55	Moorefield-McNeill	1.70
Wisconsin	23.8	-4.7	Kenosha	62	27	do	30	3	2.26	+.64	Good Rich	3.53	Bearer Dam	.88
Wyoming	28.7	-1.1	2 Stations	75	6	Lamar R.S.	-30	12	1.28	+.16	Bondurant	8.81	Arminto	T
Hawaii	69.9	+.3	do	89	†9	Haleakala, Maui	36	11	7.02	-1.43	Kukui, Maui	72.00	2 Stations	.00
Puerto Rico	72.2	-1.0	Coloso	94	†6	Garzas Dam	48	†20	1.78	-1.24	Rio Blanco(1800 elev.)	7.31	Coamo Dam	.08

CLIMATOLOGICAL DATA

Table 2

MARCH 1950

State and station	Elevation of barometer above sea level[1]	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Average dew point	Average relative humidity[2]	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: 01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F.	°F	°F		°F.				°F	%	In.	In.	In			In.	In.	M. p h		M. p. h.			0– 3	4– 7	8– 10	0–10	%
ALABAMA																																
Birmingham [2]	700	993.6	1018.2	64	40	51.9	-1.9	82	26	29	10	0	8	37	62	5.47	-.2	2.38	15	8	0.0	0	9.5	S	36	S	27	11	6	14	5.8	57
Mobile [4]	57	1010.5	1018.5	66	48	57.2	-2.5	79	28	36	14	0	0	46	72	9.14	+3.2	3.74	12	5	T	T	12.9	S	50	NW	8	14	5	12	5.0	56
Montgomery [4]	218	1010.5	1018.2	66	45	55.2	-2.6	83	26	33	14	0	0	42	66	4.15	-1.8	1.44	13	3	T	T	8.7	NW	40	SW	27	11	7	13	5.2	59
ARIZONA																																
Flagstaff [2]	7018	785.6	------	53	23	37.7	+1.2	68	31	10	27	0	30	17	49	1.01	-1.1	.72	4	0	10.4	9	9.3	S	--	---	--	13	7	11	5.1	--
Phoenix [4]	1107	974.6	1013.6	78	49	63.3	+2.6	91	29	40	13	1	0	33	39	.25	-.4	.15	2	0	0	0	3.6	E	30	W	25	13	11	7	4.4	89
Tucson [2]	2555	925.5	1013.6	76	45	60.7	+3.0	92	30	35	1	0	23	29	.26	-.5	.21	4	1	0	0	6.6	SSE	41	SW	25	13	9	9	4.6	88
Yuma [2]	142	1008.8	1013.9	83	52	67.4	----	95	31	43	14	6	0	27	26	T	----	T	0	0	0	0	6.1	W	43	NW	25	15	13	3	3.7	90
ARKANSAS																																
Fort Smith [2]	463	1000.7	1016.4	60	37	48.7	-3.9	82	26	21	14	0	7	32	59	1.74	-1.3	.54	5	4	T	T	10.2	NE	40	S	26	12	10	9	5.3	58
Little Rock [2]	265	1003.7	1016.8	60	40	49.9	-3.1	82	25	26	14	0	5	35	63	4.90	+.3	2.36	7	6	T	T	10.3	NW	40	W	7	8	11	12	5.8	54
CALIFORNIA																																
Eureka [1]	60	1018.3	------	54	42	48.0	-.3	62	30	32	12	0	1	--	--	7.71	+2.5	1.87	20	0	0	0	7.6	---	32	SW	17	4	6	21	7.9	46
Fresno [2]	327	1007.5	1019.4	66	40	53.4	-1.0	80	31	28	12	0	3	43	70	1.84	+.3	1.54	6	0	0	0	6.7	NW	29	NW	22	6	12	13	6.3	81
Los Angeles [4]	104	1013.5	1017.3	68	49	58.8	+1.3	86	29	43	14	0	0	47	76	.87	-1.9	.84	2	0	0	0	5.1	WSW	27	NW	25	9	10	12	5.7	73
Red Bluff [2]	353	1005.8	1018.8	62	42	51.9	-1.7	82	30	32	6	0	2	37	61	2.05	-1.2	.69	10	2	T	T	8.3	NW	34	SE	23	6	11	14	6.5	59
Sacramento [4]	66	1016.9	1019.5	64	44	53.5	-.8	80	31	31	12	0	1	42	69	2.00	-.6	1.28	8	0	0	0	10.0	SW	23	SW	5	9	6	16	6.3	66
San Diego [2]	87	1014.6	1017.8	66	51	58.3	+1.3	84	29	43	14	0	0	48	72	1.00	-.7	.90	6	0	T	T	6.6	WNW	27	W	25	7	14	10	6.0	72
San Francisco [4]	18	1019.6	1020.3	59	47	53.2	-1.0	78	30	43	11	0	0	42	72	1.65	-1.5	1.02	12	0	0	0	13.9	WNW	27	W	5	7	11	13	6.2	71
COLORADO																																
Denver [4]	5292	831.4	1011.7	52	27	39.4	+.1	71	5	4	12	0	22	13	41	.40	-.6	.38	2	0	4.8	5	10.1	NW	45	W	27	5	14	12	6.0	72
Pueblo [2]	4690	851.7	1011.7	57	25	40.9	+.1	75	25	-3	13	0	24	12	36	.24	-.4	.24	1	0	3.1	3	10.1	W	52	W	6	7	13	11	5.7	79
Grand Junction [2]	4602	857.4	1014.7	53	30	41.3	-2.3	68	31	16	13	0	22	19	46	.42	-.3	.24	7	0	2.2	1	9.6	ESE	54	NW	27	9	7	15	6.5	68
CONNECTICUT																																
Hartford [2]	159	1008.1	1014.3	42	23	32.6	-2.4	67	29	2	4	0	26	22	67	2.63	-1.3	.70	13	2	5.6	5	10.8	NW	47	S	8	7	9	15	6.8	63
New Haven [2]	107	1010.2	1014.3	43	26	34.3	-.2	61	29	5	4	0	23	23	63	2.93	-.9	.97	15	0	2.9	1	9.3	NW	30	NW	18	7	8	16	6.6	56
DISTRICT OF COLUMBIA																																
Washington [4]	112	1012.5	1016.7	51	32	41.8	-.8	79	27	15	3	0	18	24	55	4.05	+.3	1.40	14	0	1.8	1	10.4	WNW	40	W	23	12	6	13	5.6	58
FLORIDA																																
Apalachicola	35	1017.3	1018.6	67	52	59.5	-2.1	77	20	39	3	0	0	--	--	5.24	+1.0	2.04	12	6	0	0	9.4	NW	31	SE	21	14	5	12	5.1	56
Jacksonville [7]	43	1020.0	1018.7	72	53	62.4	-.2	85	20	39	31	0	0	48	65	4.51	+1.6	.93	12	6	0	0	8.7	NW	36	W	13	10	11	10	5.4	56
Key West [4]	21	1017.6	1018.4	80	69	74.5	+1.9	84	21	60	24	0	0	64	73	1.73	+.3	1.18	5	3	0	0	9.7	ESE	45	NW	18	13	13	5	4.2	77
Miami [4]	25	1017.6	1018.6	76	65	70.4	+.1	86	29	45	31	0	0	60	69	.50	-2.1	.26	4	1	0	0	14.3	SSE	43	NW	22	12	17	2	4.3	76
Pensacola [4]	56	1016.3	1018.3	66	50	57.9	-2.4	77	28	36	14	0	0	--	--	6.84	+2.1	2.11	13	5	0	0	9.0	---	49	NW	8	12	7	12	5.4	67
Tampa [2]	35	1017.6	1018.9	77	56	66.6	-.2	87	27	41	10	0	0	54	70	3.83	+1.4	2.38	10	4	0	0	9.0	SSW	34	W	8	11	12	8	5.0	63
GEORGIA																																
Atlanta [2]	1173	975.6	1017.7	61	40	50.2	-1.8	81	27	29	2	0	7	35	62	4.01	-1.4	1.19	15	2	T	T	12.5	NW	49	S	27	8	9	14	6.1	51
Augusta [2]	182	1002.4	1017.9	64	42	53.0	+3.0	85	26	31	9	0	4	36	59	4.09	+.1	1.36	13	5	0	0	10.6	W	--	---	--	7	10	14	6.2	--
Macon [2]	370	1004.7	1018.2	66	42	54.0	----	87	27	29	10	0	5	40	64	4.56	----	1.64	14	6	0	0	11.1	WNW	56	SW	27	9	7	15	6.0	61
Savannah [2]	65	1015.9	1018.4	67	47	56.7	-.4	84	25	29	3	0	3	45	68	4.96	+1.9	1.13	14	5	0	0	13.4	W	40	NW	13	10	12	9	6.2	66
IDAHO																																
Boise [2]	2739	920.8	1017.1	49	31	39.8	-1.6	66	31	18	12	0	23	30	68	2.01	+.7	.56	15	3	.2	T	9.7	ESE	45	W	5	1	8	22	8.1	45
Lewiston [1]	1436	964.1	1016.3	49	34	41.5	----	57	21	13	12	0	10	32	71	1.42	----	.33	18	0	2.9	2	7.3	E	--	---	--	1	8	22	8.5	--
Pocatello [2]	4478	860.8	1016.0	45	28	36.2	+.3	61	5	15	12	0	26	25	66	1.48	+.2	.51	10	0	1.8	1	12.2	WSW	47	SW	6	1	10	20	7.9	48
ILLINOIS																																
Cairo	357	1003.4	1016.6	54	36	45.1	-2.6	77	26	19	2	0	9	--	--	4.98	+1.2	3.07	8	3	T	T	10.8	---	34	SW	17	10	4	17	6.5	59
Chicago [2]	673	991.9	1015.5	40	26	32.9	-1.6	64	26	0	2	0	22	23	73	2.01	-.6	.47	15	3	5.3	3	12.4	WNW	41	NW	1	2	8	21	7.8	44
Moline [2]	606	992.9	1016.2	41	25	32.9	-1.9	70	26	0	2	0	24	24	72	1.09	-1.2	.28	11	2	2.5	1	13.8	E	60	SW	27	5	4	22	7.6	37
Peoria [2]	609	992.9	1015.6	43	26	34.6	-3.7	74	26	2	2	0	23	25	72	1.73	-1.0	.68	13	3	2.0	T	14.5	WNW	47	SW	8	4	9	18	7.4	40
Springfield [4]	636	992.9	1015.8	46	30	38.2	-2.0	79	26	8	2	0	20	28	75	1.90	-1.3	.56	11	3	3.3	2	16.6	SSE	49	S	26	4	8	19	7.4	42
INDIANA																																
Evansville [2]	431	1001.0	1017.1	52	32	42.1	-2.3	77	26	16	2	0	14	30	69	4.67	+.5	3.06	10	3	T	T	11.2	WNW	38	S	26	5	5	21	7.5	58
Fort Wayne [2]	857	983.7	1016.2	47	24	35.3	-.8	65	27	5	2	0	23	24	78	3.19	0	.80	14	2	8.0	6	11.2	NW	38	S	7	2	11	18	7.8	58
Indianapolis [2]	823	986.1	1016.2	45	28	36.8	-2.0	75	26	7	2	0	18	27	73	3.88	-.1	2.05	16	4	0.4	T	13.9	WNW	49	NW	17	4	6	21	7.6	47
Terre Haute [2]	575	995.6	1016.5	47	29	37.8	-2.8	74	26	9	2	0	20	28	72	3.29	-.5	1.35	15	3	1.2	1	13.7	WNW	43	SW	26	6	6	19	7.5	47
IOWA																																
Burlington [2]	702	989.5	1016.0	44	25	34.2	-3.7	74	26	2	2	0	26	26	77	.80	-1.9	.24	11	2	2.4	2	16.9	NW	56	SW	7	6	3	22	7.7	43
Charles City	1015	978.0	1016.3	34	20	27.2	-3.5	54	31	-7	2	0	25	--	--	1.61	-.2	.69	14	2	9.4	6	8.1	---	25	NW	8	7	8	16	6.8	39
Des Moines [4]	860	983.4	1015.4	42	23	30.5	-3.4	76	26	2	2	0	27	24	75	.79	-1.0	.28	11	1	8.9	3	12.7	NW	70	NW	7	5	6	20	7.4	42
Dubuque	699	989.2	------	38	23	30.3	-3.7	59	26	-5	2	0	23	--	--	1.50	-.5	.46	11	2	10.1	5	7.0	---	28	NW	8	3	8	20	7.6	45
Sioux City [2]	1138	972.9	1015.4	40	19	29.5	-2.6	73	26	-2	13	0	28	21	74	.92	-.2	.43	8	1	8.7	6	12.4	NW	61	N	7	6	8	17	7.1	65
KANSAS																																
Concordia	1392	964.1	1014.9	49	27	38.1	-2.9	81	25	7	12	0	24	--	--	.59	-.6	.24	8	0	6.2	4	11.1	---	50	NW	7	11	8	12	5.5	58
Dodge City [2]	2509	924.8	1013.8	56	26	40.8	-2.0	86	25	5	13	0	24	18	49	.13	-.8	.07	2	0	1.0	1	16.2	S	73	NW	7	11	8	12	5.3	74
Topeka [2]	987	982.7	1015.3	52	28	39.7	----	79	25	6	13	0	24	25	62	.63	----	.32	9	2	2.2	1	14.0	NNW	66	SW	26	8	6	17	6.7	63
Wichita [2]	1358	965.1	1014.5	54	30	42.2	-2.9	86	25	11	12	0	19	26	60	.50	-1.3	.37	5	1	0.9	1	16.7	S	57	NW	7	11	10	10	5.8	65
KENTUCKY																																
Lexington [2]	989	980.7	1017.1	52	30	40.8	-2.9	78	26	11	2	0	18	29	65	3.61	0	1.61	11	2	1.0	T	14.6	SSW	--	---	--	5	11	15	6.7	--
Louisville [2]	525	999.3	1016.8	53	32	42.5	-1.6	76	26	13	2	0	16	30	63	2.80	-1.6	.75	12	0	0.1	T	10.9	WSW	54	SW	28	6	6	19	6.9	58
LOUISIANA																																
New Orleans CO	53	1015.9	------	69	52	60.5	-2.3	82	26	38	14	0	0	--	--	4.94	+.2	2.19	13	6	0	0	8.1	---	24	S	27	11	7	13	5.5	56
New Orleans AP [2]	30	1016.3	1018.0	69	49	59.3	----	83	26	39	14	0	0	48	73	5.63	----	1.62	13	7	0	0	11.3	S	32	S	27	13	6	12	5.2	--
Shreveport [2]	181	1007.5	1016.6	67	45	55.9	-2.5	87	25	30	14	0	1	42	67	2.18	-1.9	.61	4	6	T	T	12.2	SSE	42	S	26	10	8	13	5.6	61
MAINE																																
Caribou [2]	628	986.1	1010.0	30	10	19.8	-2.0	48	23	-19	3	0	31	9	63	2.29	-.1	.75	12	1	13.8	33	18.0	NW	63	W	9	6	9	16	6.6	--
Eastport [2]	75	1007.1	1013.5	35	19	27.1	-1.8	54	29	-10	3	0	29	--	--	2.61	-1.2	.61	14	0	15.2	11	12.7	NW	56	NE	23	8	11	12	6.0	61
Portland [2]	103	1008.1	1012.1	37	15	26.4	-4.7	61	29	-21	4	0	30	13	71	4.14	+.3	1.69	13	1	16.9	11	7.7	W	43	S	9	10	9	12	5.6	59
MARYLAND																																
Baltimore [4]	123	1011.5	1016.5	50	33	41.1	-1.2	76	28	15	3	0	18	26	60	4.30	+.6	1.53	14	0	0.2	T	11.7	NW	55	N	9	10	7	14	5.8	56
MASSACHUSETTS																																
Boston [2]	124	1008.1	1012.9	43	25	33.7	-1.9	70	29	2	4	0	23	18	56	2.99	-.6	1.21	12	1	5.1	3	14.8	NW	39	W	9	8	11	12	6.0	65
Nantucket [2]	12	1012.5	1013.0	41	26	33.5	-2.0	54	28	7	4	0	23	24	70	4.20	+.5	1.22	13	2	1.6	T	17.3	NW	54	SE	23	8	12	11	5.9	55

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation of barometer above sea level[1]	Pressure		Temperature											Average relative humidity[6]	Precipitation						Wind				No. of days (sunrise to sunset)			
											No. of days								No. of days		Snow, Sleet, Hail			Fastest mile						
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	Max. 90° F. or above	Min. 32° F. or below	Average dew point		Total	Departure from normal	Greatest in 24 hours	.01 inch or more	With thunderstorms	Total	Max. depth on ground	Average hourly speed	Prevailing direction	Speed	Direction	Date	Clear	Partly cloudy	Cloudy	Sky cover[7], tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb.*	*Mb.*	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			*0–3*	*4–7*	*8–10*	*0–10*	%
MICHIGAN																															
Alpena	609	991.9	1015.2	32	15	23.3	-2.2	49	27	-11	4	0	28	--	--	2.06	+.1	.62	14	0	13.4	9	12.9	---	52	SE	17	6	11	14	6.5	52
Detroit [2]	730	988.2	1015.5	37	23	30.2	-2.8	59	27	7	2	0	22	22	74	2.56	+.2	.94	11	3	9.6	4	11.7	NW	47	NW	17	6	8	17	7.2	51
Escanaba	612	991.9	1017.6	31	14	22.5	-1.7	44	5	-6	3	0	31	--	--	3.83	+1.9	2.24	13	1	13.2	10	11.4	---	42	N	17	9	8	14	5.9	76
Grand Rapids [4]	707	990.5	1015.4	37	23	30.2	-3.2	59	27	7	2	0	24	22	80	2.27	-.2	.97	15	2	12.8	5	12.9	ESE	58	SW	14	2	11	18	7.9	46
Lansing [2]	878	982.4	1015.8	36	21	28.2	-4.0	60	27	3	3	0	27	21	78	2.39	0	.76	18	1	9.2	6	17.4	W	51	W	17	4	10	17	7.2	45
Marquette	734	987.1	1015.2	30	15	22.5	-2.3	49	7	-8	2	0	31	--	--	2.55	+.3	.90	13	1	21.5	21	8.6	---	34	S	7	5	9	17	7.1	57
Sault Ste Marie [2]	614	986.8	1015.3	29	1	18.8	-1.8	45	25	-12	3	0	30	11	76	2.25	+.5	.89	16	1	10.0	26	10.5	NW	34	NW	5	7	8	16	6.8	50
MINNESOTA																															
Duluth [4]	1133	961.7	1015.8	28	10	18.8	-4.9	45	23	-20	2	0	31	15	75	1.89	+.4	.74	9	0	12.0	15	13.8	ENE	65	NE	26	8	9	14	6.0	63
Minneapolis-StP [2]	919	980.4	1015.4	32	16	24.0	-5.6	46	5	-13	2	0	27	17	75	2.20	+.7	.84	15	2	11.1	7	12.2	E	40	SE	6	4	7	20	7.4	39
Rochester [2]	523	977.0	1015.5	32	15	23.6	-5.4	49	31	-11	2	0	27	17	75	1.86	+.5	.49	11	1	11.8	10	11.9	NW	--	---	--	3	4	24	8.0	--
St. Paul	919	988.2	1015.7	32	16	23.8	-5.3	46	4	-12	2	0	28	17	75	3.02	+1.6	.99	15	1	11.2	6	12.9	SE	41	WNW	1	4	8	19	7.3	--
MISSISSIPPI																															
Meridian [4]	375	1004.4	1018.3	66	42	54.0	-3.2	84	26	28	9	0	8	41	66	4.56	-.7	1.26	11	8	T	T	9.3	NW	--	---	--	11	5	15	5.8	--
Vicksburg [4]	247	1008.5	------	64	46	55.1	-3.4	83	25	31	14	0	1	--	--	4.02	-1.6	1.56	11	7	T	T	10.6	SW	34	NW	27	8	8	15	6.1	52
MISSOURI																															
Columbia [4]	784	986.1	1015.3	50	30	40.4	-2.5	81	26	10	2	0	20	27	71	1.74	-1.2	.83	11	4	3.0	1	10.5	SE	38	SW	7	5	10	16	6.9	51
Kansas City [2]	963	987.1	1015.2	51	29	40.0	-2.7	77	26	10	2	0	19	24	59	.71	-1.6	.33	7	0	0.2	T	13.2	SSW	57	S	26	7	6	18	6.8	46
St. Joseph [2]	967	978.7	1014.9	49	27	38.0	-2.5	77	26	7	13	0	23	25	65	.59	-1.9	.18	9	1	2.7	1	15.2	WNW	56	SW	26	8	5	18	6.5	51
St. Louis [4]	568	994.6	1015.6	50	33	41.4	-2.7	79	26	12	2	0	15	29	69	3.52	+.1	1.31	11	3	1.0	1	14.5	S	57	S	26	5	12	14	6.7	66
Springfield [2]	1324	967.2	1015.5	52	31	41.3	-2.3	78	26	14	2	0	17	29	68	2.12	-1.3	1.41	6	4	1.5	2	13.6	SSE	48	S	26	9	9	13	5.7	52
MONTANA																															
Billings [2]	3570	888.3	1015.5	40	21	30.2	-3.9	64	4	-13	12	0	27	20	71	1.26	----	0.44	9	0	15.4	6	11.9	NNE	56	NW	6	3	8	20	7.7	60
Butte	5533	825.3	1017.4	37	14	25.3	-3.0	56	5	-24	11	0	31	16	69	1.70	+1.1	0.56	14	1	18.4	9	9.5	NW	--	---	--	3	3	25	8.3	--
Glasgow	2086	940.7	1018.4	30	10	20.0	-5.6	48	4	-20	12	0	29	14	78	0.83	+0.1	0.25	10	0	8.0	10	----	---	--	---	--	3	6	22	7.7	--
Great Falls [2]	3657	885.2	1015.2	37	20	28.5	-5.8	62	5	-13	12	0	27	17	67	2.14	+1.3	0.86	11	0	20.6	10	13.5	SW	56	SW	3	7	3	21	7.6	70
Havre	2507	925.8	1018.0	34	15	24.3	-2.8	51	3	-13	12	0	29	--	--	1.51	+1.0	0.92	8	0	9.9	7	9.2	E	33	SW	23	4	10	17	7.2	53
Helena [2]	4124	870.3	1016.4	40	21	30.4	-1.3	63	5	-12	12	0	29	20	68	0.82	0	0.32	11	0	9.2	4	7.4	W	49	SW	5	3	4	24	8.0	47
Kalispell	2973	909.2	1015.2	38	24	31.1	-1.8	52	3	-6	12	0	26	23	--	1.67	+0.7	0.38	14	0	12.5	6	10.3	SSE	--	---	--	2	4	25	8.8	--
Miles City [2]	2371	930.2	1017.2	34	15	24.7	----	59	4	-13	12	0	30	18	--	1.83	----	0.49	9	0	16.0	7	11.8	WNW	--	---	--	5	5	21	7.7	--
Missoula [2]	3263	899.4	1016.0	41	26	33.8	+0.3	52	31	3	11	0	27	24	73	0.58	-0.2	0.15	12	0	3.0	1	6.4	NW	29	SW	27	2	4	25	8.6	34
NEBRASKA																															
Lincoln [4]	1189	970.9	1014.9	46	25	35.3	-2.2	75	26	6	12	0	23	23	69	.76	-.5	.38	7	0	8.1	6	13.4	N	63	NW	7	8	9	14	6.5	55
Norfolk [2]	1551	958.3	1015.6	39	20	29.5	-5.9	72	26	-4	13	0	24	21	76	.97	-.4	.45	8	1	9.7	4	----	NW	--	---	--	7	6	18	6.8	--
North Platte [2]	2821	914.3	1014.5	46	20	32.6	-4.0	73	5	-5	13	0	30	20	65	.86	0	.25	5	0	9.0	3	12.5	NW	72	N	7	7	8	16	6.7	55
Omaha [2]	1105	974.3	------	44	24	34.1	-2.0	77	26	4	2	0	25	22	67	.60	-.8	.23	7	0	5.5	2	15.6	NW	73	NW	7	7	10	14	6.4	58
Valentine	2598	921.1	1015.9	38	16	27.0	-5.3	68	4	-13	13	0	29	--	--	1.14	+.1	.31	8	0	10.3	5	11.0	---	47	NW	7	8	8	15	6.6	67
NEVADA																															
Ely [2]	6262	807.3	------	49	19	33.7	+1.2	65	4	-6	12	0	21	--	--	.88	-.3	.62	6	0	7.8	5	10.1	---	54	S	5	3	11	17	7.3	65
Reno [2]	4527	861.8	1016.8	55	24	39.2	-.8	75	31	9	12	0	30	24	55	.96	+.2	.56	6	0	1.2	1	7.5	W	52	S	23	7	8	16	6.8	56
Winnemucca [2]	4339	867.3	1017.2	52	24	37.7	-2.3	71	31	2	12	0	30	25	59	1.08	+.1	.32	10	0	6.6	2	9.1	---	63	W	5	3	6	22	7.9	55
NEW HAMPSHIRE																															
Concord [2]	289	1002.0	1012.9	38	17	27.5	-1.6	63	29	-7	3	0	28	14	61	3.35	+.3	1.04	12	0	8.6	11	8.4	WNW	71	NE	23	9	7	15	6.0	57
Mt. Washington	6274	789.0	1008.5	15	-2	6.2	-5.3	41	28	-38	3	0	31	--	--	5.04	-2.2	1.00	19	1	32.4	7	43.5	NW	--	---	--	5	5	21	7.6	28
NEW JERSEY																															
Atlantic City	52	1013.2	1015.2	46	31	38.4	-.2	61	29	13	3	0	17	--	--	3.74	+.1	1.51	14	0	0.2	T	17.9	NW	56	S	28	9	6	16	6.1	69
Newark [2]	30	1013.5	1014.8	45	27	36.2	-3.4	70	28	9	1	0	21	22	59	3.98	+.1	1.43	15	0	0.4	T	14.0	NW	43	W	9	8	8	15	6.3	--
Trenton	190	1007.8	1014.9	46	29	37.1	-2.0	69	28	12	3	0	20	--	--	4.50	+1.1	1.16	15	1	0.5	T	12.2	NW	43	NW	18	9	8	14	6.1	52
NEW MEXICO																															
Albuquerque [2]	4972	845.9	1011.7	63	33	47.9	+2.0	77	24	20	13	0	15	13	28	.04	-.4	.04	1	0	T	T	10.7	NW	70	W	25	13	10	8	4.4	73
Roswell	3619	889.3	1012.5	70	33	51.5	+.2	84	31	14	13	0	15	12	24	T	-.7	T	0	0	T	T	10.1	S	47	SW	25	15	9	7	3.8	91
NEW YORK																															
Albany [2]	97	1007.8	1014.1	38	17	27.2	-2.6	68	28	-20	4	0	26	17	67	2.10	-.5	.74	11	1	4.3	14	11.2	WNW	52	W	15	7	10	14	6.0	63
Binghamton [4]	871	983.4	1015.3	39	20	29.3	-3.3	66	28	-5	4	0	27	19	68	3.46	+.8	1.05	22	0	17.3	8	7.8	WSW	28	W	9	3	10	18	7.5	51
Buffalo [2]	768	985.4	1015.3	37	20	28.3	-3.0	65	27	-1	4	0	26	20	71	3.23	+.7	.72	15	2	13.7	6	16.1	W	50	SW	15	4	9	18	7.4	53
Canton	448	997.0	1013.5	33	13	22.9	-4.9	56	28	-21	3	0	29	14	69	3.52	+1.0	1.03	14	2	18.7	14	9.2	W	34	W	5	8	12	11	6.0	63
New York City [4]	314	1012.5	1014.8	45	29	37.0	-.7	65	28	9	3	0	20	22	60	3.87	+.2	1.21	15	0	0.5	1	18.9	NW	70	NW	18	8	10	13	6.0	55
Oswego	335	1001.7	1014.6	35	21	27.9	-3.2	59	28	-9	4	0	28	--	--	3.58	+1.0	1.12	18	0	24.6	17	11.9	W	40	NW	2	5	9	17	7.3	43
Rochester [2]	523	994.2	1015.1	36	19	27.8	-4.0	61	28	-4	4	0	26	20	74	4.28	+1.5	1.11	19	1	22.4	15	13.4	WSW	45	W	1	3	11	17	7.5	67
Syracuse [2]	596	992.2	1015.1	36	18	27.1	-2.6	64	28	-16	4	0	29	18	70	5.15	+1.8	1.34	20	2	33.9	24	11.9	WNW	43	W	2	3	9	19	7.6	50
NORTH CAROLINA																															
Asheville	2253	------	------	55	33	43.8	-1.1	73	27	18	2	0	17	--	--	3.91	-.1	1. 2	11	2	0.1	T	10.9	NW	36	SE	27	9	6	16	6.0	57
Charlotte [4]	779	986.1	1017.7	59	38	48.5	-1.9	82	27	26	3	0	9	32	59	4.36	+.2	1.09	10	0	0	0	9.5	SW	35	SW	8	10	6	15	6.3	58
Greensboro [2]	886	985.1	1017.5	57	33	45.1	-2.0	84	27	18	4	0	15	29	59	3.23	-1.1	.67	11	1	T	T	10.2	SW	34	S	27	9	7	15	6.3	55
Hatteras	11	1016.6	1017.1	60	46	52.6	+0.6	74	28	28	3	0	1	44	75	2.81	-1.4	.88	11	2	0	0	16.0	S	45	SW	1	8	6	17	6.6	56
Raleigh [4]	376	1001.0	1017.0	60	38	48.7	-1.5	85	27	23	3	0	7	32	60	2.55	-1.3	.75	10	0	T	0	8.3	SW	31	SW	8	11	12	8	5.2	54
Wilmington [4]	72	1016.3	1017.6	62	45	53.0	-0.3	77	25	27	3	0	2	--	--	4.13	+1.0	.87	13	0	0	0	10.5	SW	49	SW	27	11	5	15	6.2	58
NORTH DAKOTA																															
Bismarck [2]	1677	955.6	1017.7	29	11	20.0	-1.9	48	22	-21	2	0	31	19	75	2.84	+2.0	1.30	10	0	29.7	16	12.8	NNW	56	N	7	4	10	17	7.2	56
Devils Lake	1478	961.7	1015.3	26	9	17.5	-2.3	44	22	-20	2	0	31	--	--	.86	+.1	.33	9	0	12.8	17	10.8	---	45	NE	26	5	9	17	7.2	57
Fargo [2]	940	980.7	1016.7	29	13	20.7	-2.0	42	22	-21	2	0	29	15	80	2.21	+1.2	1.16	12	0	10.2	13	14.4	NNW	45	N	7	3	10	18	7.4	55
Williston	1878	947.5	1016.9	28	11	19.6	-3.3	50	22	-13	11	0	29	--	--	1.43	+.7	.72	7	0	12.3	10	7.8	---	30	N	6	4	5	22	7.8	69
OHIO																															
Cincinnati [4]	627	984.1	1016.7	51	32	41.1	-1.7	80	26	11	2	0	16	26	64	2.04	-1.9	.72	10	0	1.3	1	12.8	W	--	---	--	--	--	--	---	47
Cleveland [2]	762	987.1	1015.8	42	25	33.0	-1.5	78	27	6	3	0	23	25	74	4.27	+1.6	.98	18	2	10.1	3	14.8	W	45	W	17	2	7	22	7.8	38
Columbus [4]	822	985.8	1016.4	47	29	37.5	-1.6	80	27	8	2	0	19	26	68	1.31	-2.2	.35	11	1	0.7	1	11.4	WNW	43	SW	28	5	9	17	7.1	51
Dayton [2]	1003	979.3	1016.4	45	27	36.0	-2.7	76	26	7	2	0	20	26	69	1.96	-1.7	.85	13	1	.8	T	14.7	WNW	50	NW	1	4	9	18	7.2	50
Sandusky	629	994.2	1018.0	41	27	33.6	+1.5	73	27	9	2	0	21	--	--	3.37	+.7	1.15	15	2	7.0	4	11.0	W	31	W	8	4	8	19	7.5	49
Toledo [2]	628	991.9	1015.9	39	24	31.5	-2.3	61	27	6	3	0	23	24	76	2.78	+.2	1.09	15	3	8.4	4	15.2	SW	45	SW	28	3	6	22	8.1	46
Oklahoma																															
Oklahoma City [4]	1214	968.2	1015.4	62	37	49.2	-0.8	83	25	14	13	0	5	28	53	.12	-1.9	.08	4	1	0.2	T	11.7	SSE	31	S	26	12	14	5	4.5	69
Tulsa [2]	674	990.5	1015.1	59	36	47.4	-2.0	84	25	17	13	0	12	30	58	1.02	-2.0	.76	3	4	T	T	15.0	S	51	SW	26	14	7	10	5.1	61

See footnotes at end of table.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation of barometer above sea level[1]	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Temperature: Average relative humidity[2]	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover[3], tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M p. h.		M p. h.			0— 3	4— 7	8— 10	0—10	%
OREGON																																
Baker [4]	3471	894.0	1017.4	45	27	35.7	+1.9	63	31	16	12	0	26	26	--	1.04	-.1	.39	14	1	6.0	3	9.0	SSE	24	SW	17	0	7	24	8.4	42
Burns [1]	4162	871.7	1017.1	44	24	33.9	-2.4	64	30	13	10	0	29	25	70	1.66	+.7	.33	15	0	6.6	1	---	---	--	---	--	4	5	22	8.1	--
Eugene [2]	373	1004.1	1017.9	53	37	45.0	----	71	31	27	12	0	6	40	82	5.03	---	1.20	19	0	.1	0	9.6	S	--	---	--	1	5	25	8.9	--
Meacham [2]	4056	874.0	1016.9	40	26	32.5	----	51	31	9	11	0	26	26	80	4.63	---	1.40	25	0	19.1	17	7.4	ESE	--	---	--	0	2	29	9.6	--
Medford [2]	1329	970.5	1019.0	55	34	44.6	-2.3	76	31	20	12	0	9	36	75	2.03	+.5	.86	14	0	.7	1	7.3	N	--	---	--	3	6	22	8.1	--
Portland [4]	39	1015.2	1016.9	52	40	46.2	-.7	62	31	33	11	0	0	39	79	5.69	+1.8	.82	23	0	T	T	7.0	SE	32	SW	17	0	4	27	9.1	22
Roseburg [1]	510	999.7	------	56	38	47.0	-.1	78	31	26	12	0	4	--	--	4.77	+1.5	1.27	20	0	.4	T	4.6	---	24	SW	17	1	8	22	8.3	43
PENNSYLVANIA																																
Allentown	385	1001.0	1015.7	44	25	34.5	-3.2	72	28	7	4	0	25	21	62	4.58	+1.1	1.12	14	--	0.3	T	12.1	WNW	--	---	--	--	--	--	6.5	--
Erie	714	------	------	38	24	31.2	-2.3	76	27	8	4	0	24	--	--	4.41	+1.8	1.31	18	1	15.8	4	11.2	W	42	W	9	5	9	17	7.3	37
Harrisburg [4]	374	1002.0	1016.0	45	27	36.0	-2.9	72	28	10	3	0	22	21	59	3.78	+.7	1.64	13	0	1.0	1	10.5	WNW	42	W	9	9	8	14	6.2	61
Philadelphia [2]	114	1014.6	1015.7	48	30	38.6	-0.5	71	28	13	3	0	19	25	62	4.68	+1.3	1.14	17	1	T	T	12.9	WNW	40	WNW	2	9	8	14	6.1	--
Pittsburgh [4]	842	984.8	1015.8	45	28	36.6	-2.9	83	27	8	3	0	19	23	65	3.53	+.5	.74	16	--	5.2	--	13.1	W	--	---	--	--	--	--	----	33
Reading [2]	323	1003.4	1015.6	46	28	37.2	-3.4	73	28	11	3	0	21	---	--	5.44	+1.9	1.87	16	0	2.2	2	15.1	NW	52	NW	9	8	8	15	6.5	53
Scranton	805	985.4	1015.6	41	24	32.6	-3.1	69	28	6	4	0	25	--	--	4.08	+.9	1.27	15	1	19.3	2	8.5	NW	33	NW	29	8	11	12	6.0	50
RHODE ISLAND																																
Block Island	26	1012.2	1013.2	41	28	34.5	-.9	55	29	7	4	0	21	--	--	2.91	-.9	.90	12	2	5.7	2	20.8	NW	75	NW	18	7	12	12	5.9	61
Providence [3]	159	1007.5	1013.5	43	25	34.2	-1.5	60	28	2	4	0	22	20	61	3.84	+.4	1.61	12	0	3.7	2	11.9	WNW	46	NW	2	7	11	13	6.1	59
SOUTH CAROLINA																																
Charleston [4]	48	1016.3	1017.8	64	48	55.7	-1.7	[illegible]	25	34	9	0	0	43	69	5.13	+2.1	1.81	14	4	T	0	11.5	SW	33	S	27	11	4	16	6.0	55
Columbia [4]	347	1009.1	1017.5	62	42	52.1	-3.1	85	27	30	3	0	3	38	64	3.86	+.5	.93	12	2	T	T	9.8	W	43	SW	8	10	6	15	5.9	52
Greenville [2]	1040	979.3	1017.1	59	38	48.1	-1.8	80	25	24	9	0	8	33	60	3.89	-1.3	1.15	12	3	T	T	8.9	NE	47	SW	8	11	7	13	6.1	59
SOUTH DAKOTA																																
Huron [2]	1301	967.2	1016.0	33	15	24.2	-4.7	62	6	-13	12	0	28	19	81	1.37	+.5	.66	10	1	17.8	11	13.9	NW	56	N	7	5	8	18	7.1	55
Rapid City [2]	3259	898.4	1016.1	36	14	25.1	-6.5	68	4	-15	12	0	30	16	72	2.66	+1.7	.94	11	0	30.7	11	16.7	NNW	72	NW	26	7	7	17	7.0	73
TENNESSEE																																
Chattanooga [2]	762	989.8	1017.6	59	38	48.9	-.2	78	25	26	10	0	10	35	61	7.39	+1.6	3.75	12	4	T	0	8.0	S	45	S	27	9	6	16	6.4	46
Knoxville [2]	995	983.4	1017.5	59	36	47.4	-.1	81	26	23	2	0	9	33	60	5.17	+.1	1.84	10	2	T	0	14.7	SW	44	SW	27	8	8	15	6.4	56
Memphis [5]	399	1006.4	1017.2	59	39	49.0	-2.9	79	26	27	2	0	8	36	64	5.35	+.1	1.83	10	9	T	T	9.5	S	34	NW	1	10	8	13	6.1	54
Nashville [2]	546	997.3	1017.3	58	36	47.0	-2.2	77	26	20	2	0	12	34	65	3.77	-1.3	.99	11	3	T	T	9.7	NW	38	S	27	9	10	12	6.0	46
TEXAS																																
Abilene [2]	1755	952.9	1014.0	70	41	55.4	+0.2	92	25	21	13	1	4	29	44	.17	-1.1	.13	2	1	T	T	17.4	S	52	N	18	11	8	12	5.4	80
Amarillo [2]	3604	886.2	1012.1	64	30	46.9	+1.6	82	25	8	13	0	19	15	37	T	-.7	T	0	0	T	T	14.3	S	72	W	26	15	11	5	3.8	85
Austin [2]	621	995.3	1016.7	71	47	59.1	-1.6	88	26	30	13	0	2	42	61	.80	-1.5	.61	4	3	0	0	11.1	S	36	NE	1	7	14	10	5.5	60
Brownsville [2]	20	1013.2	1014.0	77	60	68.3	+0.1	87	28	45	13	0	0	59	79	1.96	+.4	.74	7	2	0	0	13.7	SSE	47	S	12	9	4	18	6.6	56
Corpus Christi [2]	44	1014.6	1015.1	75	56	65.4	+2.4	90	26	40	13	1	0	54	74	.59	-1.0	.22	8	2	0	0	14.9	SSE	56	S	31	8	8	15	6.4	52
Dallas [2]	488	998.0	1016.3	67	44	55.6	-1.8	87	24	24	13	0	3	37	57	2.14	-.7	2.14	1	3	T	T	11.5	S	37	W	12	11	9	11	5.4	62
Del Rio	960	980.4	1013.3	76	52	64.0	+.5	95	24	36	13	2	0	42	50	.07	-.7	.07	2	1	0	0	9.7	---	37	NW	27	11	5	11	5.0	68
El Paso [2]	3916	884.2	1010.7	72	44	58.0	+3.1	84	31	31	17	0	1	18	23	T	-.4	T	0	0	T	T	13.2	W	61	SW	25	14	8	9	4.4	85
Fort Worth [2]	706	991.5	1015.8	68	44	56.0	-0.7	88	24	23	13	0	3	35	52	1.58	-.7	1.57	2	1	T	T	16.2	S	45	NW	18	12	9	10	5.0	--
Galveston [4]	54	1016.6	1016.7	68	57	62.2	-.2	83	28	41	14	0	0	53	76	1.52	-1.2	.76	9	3	0	0	15.0	SE	42	N	13	10	8	13	5.7	--
Houston [4]	138	1014.6	1017.0	70	53	61.3	-2.0	83	26	35	14	0	0	49	71	.92	-2.6	.31	8	1	0	0	12.7	SSE	38	S	26	10	7	14	6.0	60
Laredo [2]	418	999.0	1013.6	81	56	68.6	+.8	105	26	42	13	9	0	48	57	.68	-.2	.43	5	3	0	0	11.2	SE	--	---	--	7	10	14	6.4	--
Palestine	510	998.6	1016.9	67	47	57.0	-2.1	85	25	28	13	0	2	--	--	1.95	-1.5	1.42	10	4	T	T	9.5	---	30	SW	27	9	10	12	5.8	61
Port Arthur [4]	34	1015.6	1016.3	69	53	60.9	-1.0	82	28	38	14	0	0	51	80	3.57	+.3	1.12	10	7	0	0	14.8	SSE	40	NW	19	8	12	11	5.5	56
San Antonio [2]	794	990.9	1015.5	73	48	60.6	-2.2	97	26	32	14	1	1	42	59	.24	-.6	.08	7	1	0	0	12.4	NE	42	NW	27	7	11	13	6.1	59
Wichita Falls	1030	978.3	1014.9	67	39	53.1	-2.9	86	25	19	13	0	7	28	46	.07	-1.8	.07	1	0	T	0	15.8	SSE	59	W	15	17	9	5	4.0	--
UTAH																																
Salt Lake City [2]	4227	870.3	1016.2	52	30	40.8	+.8	68	4	19	13	0	22	25	57	.98	-.8	.21	10	1	4.0	1	9.6	SE	61	NW	22	3	12	16	7.4	50
VERMONT																																
Burlington [2]	403	998.0	1013.6	34	14	23.5	-5.6	59	28	17	4	0	30	13	66	2.79	+.8	1.28	13	1	11.0	5	9.0	SSW	50	SW	5	7	6	18	6.8	53
VIRGINIA																																
Cape Henry	18	1015.2	1015.9	56	39	47.4	+.8	85	27	24	3	0	5	--	--	2.00	-1.9	.45	12	2	T	T	15.3	W	49	N	13	11	7	13	5.6	73
Lynchburg [2]	686	982.1	1016.5	54	32	42.8	-2.6	82	25	16	3	0	17	25	54	3.63	+.1	1.13	13	0	5.6	5	10.0	WNW	43	S	27	11	5	15	5.6	63
Norfolk [4]	91	1015.6	1016.8	57	39	47.8	-.4	84	27	23	3	0	8	34	64	2.79	-1.0	.67	14	4	0.8	1	12.1	W	38	S	8	--	--	--	---	63
Richmond [4]	144	1010.2	1016.7	56	35	45.3	-1.9	81	27	18	3	0	15	30	60	3.37	-.3	.97	10	1	5.0	5	9.7	SW	37	SW	8	10	7	14	5.7	63
WASHINGTON																																
Ellensburg [2]	1735	952.3	1015.6	46	27	36.8	-4.1	55	30	12	11	0	25	29	78	0.98	+0.5	0.20	15	0	6.1	3	8.9	NW	--	---	--	3	5	23	7.9	--
Kelso	750	------	------	51	36	43.4	----	63	29	27	29	0	9	38	82	6.18	-----	1.05	28	0	0.6	1	9.2	SSE	--	---	--	1	2	28	9.1	--
North Head	211	1007.1	1014.9	48	40	43.8	-1.4	57	29	32	11	0	1	--	--	11.07	+5.5	1.84	28	0	T	T	18.2	E	59	S	18	0	6	25	8.8	15
Seattle [4]	125	1010.5	1015.0	50	40	44.8	-1.6	57	1	35	10	0	0	38	80	7.23	+4.2	2.32	21	1	T	T	10.7	S	37	S	20	0	6	25	8.7	20
Spokane [2]	1929	945.1	1015.1	43	29	35.7	-4.0	51	3	7	11	0	24	28	74	3.75	+2.6	0.91	21	0	7.7	5	11.2	SSW	31	SW	3	1	6	24	8.3	41
Tacoma	194	1007.8	1014.9	49	38	43.6	-0.6	58	3	32	29	0	2	--	--	7.12	+3.6	1.77	27	0	0.3	T	9.0	S	40	W	17	1	9	21	8.4	24
Tatoosh Island	86	1010.5	1013.9	46	39	42.0	-0.9	49	3	33	10	0	0	38	84	14.80	+7.0	2.73	29	0	T	T	17.0	E	52	E	21	0	4	27	9.3	18
Walla Walla	991	980.0	1016.6	52	37	44.3	-1.8	62	3	21	11	0	5	34	--	2.38	+0.8	0.54	19	0	0.3	T	6.7	S	35	SW	17	1	8	22	8.3	35
Yakima [2]	1076	975.6	1015.1	53	29	40.7	-3.1	67	30	22	12	0	25	30	69	0.72	+0.5	0.23	11	0	T	0	8.6	W	--	---	--	3	8	20	7.7	--
WEST VIRGINIA																																
Elkins [2]	1947	945.8	1017.0	47	23	35.2	-3.9	80	27	3	4	0	26	25	70	4.81	+1.0	1.03	18	0	15.7	3	7.9	WNW	42	W	1	5	6	20	7.5	46
Parkersburg	637	------	------	50	29	39.6	-3.2	86	27	8	3	0	19	--	--	2.61	-.9	.73	13	1	3.2	2	8.7	NW	33	S	27	9	6	16	6.3	49
WISCONSIN																																
Green Bay	617	988.5	1015.5	32	17	24.3	-4.3	49	27	-10	3	0	29	14	71	2.49	+.5	.96	12	1	5.0	7	11.2	NW	54	W	17	7	8	16	6.5	55
La Crosse [2]	672	989.8	1015.4	34	17	25.2	-4.6	53	31	-18	2	0	27	18	77	1.94	+.3	.83	10	1	8.3	8	10.0	NW	41	NW	8	5	3	23	7.9	48
Madison [2]	974	982.7	1015.4	36	19	27.7	-2.9	54	27	-8	2	0	25	19	75	2.34	+.3	.72	14	2	11.5	6	14.6	WNW	45	NW	1	4	8	19	7.5	55
Milwaukee [2]	681	988.8	1015.2	36	22	29.0	-1.1	59	27	-4	2	0	26	21	75	2.50	+.1	.68	16	2	14.9	8	15.0	WNW	46	SW	7	3	8	20	7.6	30
WYOMING																																
Cheyenne [2]	6094	806.0	1013.3	44	19	31.3	-1.8	63	5	-4	12	0	29	15	53	.89	-.1	.33	12	8	9.3	4	17.7	WNW	54	NW	26	4	9	18	7.1	75
Lander [2]	5352	823.9	1014.2	45	19	32.0	-.4	64	5	-1	11	0	31	16	54	.59	-.6	.31	7	0	9.5	3	8.2	---	57	SW	22	6	11	14	6.3	65
Sheridan [2]	3790	881.1	1016.0	41	17	28.7	-2.7	67	4	-16	12	0	30	19	67	1.62	+.5	.43	14	0	18.1	4	10.4	NW	57	NW	22	5	6	20	7.4	59
PACIFIC AREA																																
Canton Island [2]	12	1009.5	1010.0	88	77	81.9	----	89	4	76	12	0	0	72	76	.08	----	.03	3	0	0	0	----	---	--	---	--	9	19	3	4.6	--
Hilo [2]	36	1016.6	1018.1	80	64	71.8	----	85	20	60	7	0	0	63	78	6.97	----	1.23	26	0	0	0	5.8	SW	--	---	--	1	14	16	7.4	--
Honolulu [4]	15	1018.6	1019.3	77	69	72.8	+1.4	80	17	66	31	0	0	60	67	1.06	-2.1	.38	12	0	0	0	12.9	ENE	36	NE	29	11	15	5	4.5	71
Lihue [2]	148	1014.6	1019.9	78	65	71.4	----	82	4	57	4	0	0	63	74	5.58	----	3.45	19	1	0	0	11.8	NE	--	---	--	4	12	15	6.9	--
Wake Island [2]	13	1016.3	1016.8	83	74	78.2	----	85	21	69	18	0	0	69	76	.62	----	.32	10	0	0	0	11.4	E	--	---	--	19	9	3	3.4	--
PUERTO RICO																																
San Juan		1015.6	1018.6	79	70	74.4	-1.0	84	20	66	17	0	0	--	--	2.05	-1.1	.92	15	0	0	0	9.9	E	29	E	11	7	20	4	5.5	64

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation of barometer above sea level[1]	Pressure		Temperature										Average relative humidity[6]	Precipitation						Wind					No. of days (sunrise to sunset)			Sky cover[7], tenths (sunrise to sunset)	Possible sunshine
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 70° F. or above	No. of days: Min. 32° F. or below	Average dew point		Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	Clear	Partly cloudy	Cloudy		
	Ft.	*Mb.*	*Mb.*	*°F.*	*°F.*	*°F.*	*°F.*	*°F.*		*°F.*				*°F.*	*%*	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			*0–3*	*4–7*	*8–10*	*0–10*	*%*
ALASKA																																
Anchorage [2]	141	1001.4	1006.4	38	17	27.5	+3.8	45	1,2	4	12	0	31	20	69	.29	-.26	.28	2	0	4.9	13	2.8	N	23	N	1	4	7	20	7.8	50
Annette Island	113	1005.4	1009.4	44	32	37.9	-1.3	52	24	20	11	0	13	29	72	7.25	-1.15	1.28	15	0	0.1	T	11.7	ESE	--	---	--	6	3	22	7.5	--
Barrow	29	1015.2	1015.6	-5	-18	-11.7	+2.8	7	8	-34	14	0	31	-19	62	.04	-.10	----	2	0	0.5	--	-----	ENE	35	E	7	8	13	10	5.7	--
Bethel [2]	28	1000.7	1002.0	29	13	21.0	+9.4	41	10	-10	5	0	29	17	81	.53	-.42	.24	8	0	5.3	9	9.1	NE	25	NE	5	3	4	24	7.9	--
Cordova [2]	44	1004.4	1006.4	39	23	31.3	+1.0	45	18	11	12	0	28	27	81	1.98	-3.06	.55	14	0	3.6	8	3.9	E	31	ESE	1	6	3	22	7.8	--
Fairbanks [2]	442	990.9	1008.5	33	2	17.5	+7.9	45	17	-10	12	0	31	14	77	.52	-.14	.34	7	0	6.7	25	4.4	N	29	E	15	10	9	11	5.7	71
Galena	125	1002.4	1007.1	23	1	12.3	+6.9	34	26	-20	29	0	31	5	64	.18	-.54	.12	4	0	1.8	27	8.9	N	--	---	--	6	11	14	6.3	--
Gambell	32	1006.8	1007.8	10	1	5.6	-0.4	30	11	-12	19	0	31	5	85	4.85	+3.65	1.10	17	0	48.5	31	20.4	NNE	45	NE	17	5	5	21	7.8	--
Juneau [2]	22	1008.8	1009.7	40	26	32.7	-0.1	47	24	11	13	0	25	25	74	1.29	-1.76	.36	13	0	4.1	12	6.5	E	35	SE	4	6	3	22	7.4	45
Kotzebue [2]	20	1008.5	1009.1	14	-2	6.2	+7.1	29	2	-21	28	0	31	3	77	.30	+.02	.08	10	0	4.6	16	15.0	E	--	---	--	6	5	20	7.1	--
McGrath [2]	341	992.6	1005.8	31	1	15.9	+7.6	43	6	-17	29	0	31	10	70	.03	-1.01	.02	2	0	0.7	20	3.5	NW	--	---	--	7	6	18	6.9	--
Nome [2]	15	1005.4	1006.1	23	6	14.3	+5.6	36	15	-17	31	0	31	12	79	1.01	+.17	.34	10	0	11.3	34	10.8	NE	72	NE	16	5	4	22	7.6	--
Northway [2]	1718	945.1	1010.2	27	-9	9.0	+0.7	37	20	-25	9	0	31	4	70	.11	-.14	.11	1	0	1.2	20	-----	E	--	---	--	7	12	12	5.9	--
St. Paul Island	28	995.6	997.0	33	24	28.3	+3.9	37	24	12	1	0	31	27	88	1.13	-.53	----	18	0	7.8	3	-----	---	--	---	--	2	5	24	8.7	--
Umiat	340	1003.7	------	-4	-21	-12.8	+0.9	15	8	-36	1	0	31	--	--	.15	+.02	.04	7	0	1.7	13	5.9	W	--	---	--	6	16	9	7.1	--
Wales	18	1010.5	1011.2	7	-6	0.4	+2.9	34	6	-22	30	0	31	--	--	.51	-.09	.12	12	0	5.1	23	-----	---	--	---	--	7	2	22	7.4	--
Yakutat	31	1006.8	1007.9	40	23	31.6	-0.4	44	9	8	12	0	28	29	86	4.99	-4.49	1.88	15	0	27.4	30	6.5	ESE	--	---	--	5	5	21	7.9	--

[1] Height of barometer cistern above mean sea level on Jan. 1, 1900, or when station was first established since Jan. 1, 1900. When station is moved to new location or airport, the pressure is reduced to the original elevation for homogeneity. These elevations do not represent the present station elevation in most cases.

[2] Data are from airport records. Pressures adjusted to original elevation, according to note 1.

[3] Barometric, hygrometric, wind, character of day, and average cloudiness data from airport records; remainder from city office records.

[4] Barometric and hygrometric data from airport records, remainder from city office records.

[5] Barometric, temperature, degree day, and hygrometric data from airport, remainder from city office records.

[6] As of Jan. 1, 1949, relative humidity values at temperatures below 32° F. are expressed with respect to water rather than with respect to ice, as used prior to that date. Therefore, these hygrometric values before and after Jan. 1, 1949, cannot accurately be combined without necessary conversion.

[7] As of Jan. 1,1949,"Sky cover"has been substituted for "Average cloudiness" to include smoke, snow, etc., in addition to clouds that obscure the sky.

NOTE.--Unless otherwise indicated, data in table are city office records.

HEATING DEGREE DAYS

Table 3

MARCH 1950

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Birmingham (AP)	414	2028	2457
Mobile	255	995	1511
Mobile (AP)	293	1143	
Montgomery	323	1403	1976
Montgomery (AP)	353	1558	
ARIZONA			
Flagstaff	839	5467	5914
Payson	526	3340	
Phoenix	90	1110	1387
Phoenix (AP)	107	1286	
Tucson (AP)	154	1391	
Winslow (AP)	568	3999	
Yuma (AP)	40	847	1013
ARKANSAS			
Fort Smith(AP)	507	2889	3035
Little Rock (AP)	468	2525	2832
Texarkana	365	1974	
CALIFORNIA			
Bakersfield (AP)	266	1970	
Blue Canyon	815	4410	
Burbank (AP)	207	1507	
Eureka	520	3777	3620
Fresno (AP)	354	2434	2195
Los Angeles	198	1283	1103
Los Angeles (AP)	283	1694	
Mt. Shasta	784	4848	
Oakland (AP)	389	2638	
Red Bluff (AP)	398	2603	2394
Sacramento	350	2382	2356
Sacramento (AP)	400	2666	
Sandberg	596	3371	
San Diego (AP)	207	1314	1257
San Francisco	361	2613	2413
San Francisco (AP)	413	2875	
San Jose	331	2181	
Santa Maria (AP)	335	2496	
COLORADO			
Denver	787	4385	4984
Denver (AP)	826	4741	
Grand Junction(AP)	728	5058	
Pueblo (AP)	734	4409	4888
CONNECTICUT			
Bridgeport (AP)	949	4654	
Hartford (AP)	998	5147	5329
New Haven (AP)	944	4785	5090
DELAWARE			
Wilmington (AP)	841	4136	
DISTRICT OF COLUMBIA			
Washington	717	3353	4106
Washington (AP)	719	3402	
FLORIDA			
Apalachicola	187	741	1212
Daytona Beach (AP)	124	494	
Fort Myers	38	168	
Jacksonville	146	642	1140
Jacksonville (AP)	161	735	
Key West	0	4	59
Key West (AP)	3	11	
Melbourne (AP)	68	248	
Miami	25	75	182
Miami Beach *	4	24	
Int.Airport, Hialeah	12	59	
Orlando (AP)	68	308	
Pensacola	241	882	1238
Tallahassee (AP)	223	891	
Tampa (AP)	62	276	560
West Palm Beach (AP)	22	71	
GEORGIA			
Atlanta	493	2308	2781
Atlanta (AP)	460	2231	
Athens (AP)	502	2484	
Augusta (AP)	387	1698	2185
Columbus	379	1721	
Macon (AP)	359	1633	
Savannah (AP)	278	1195	1563
Valdosta (AP)	245	1035	
IDAHO			
Boise (AP)	775	5159	4894
Lewiston (AP)	722	5263	
Pocatello (AP)	885	5856	5737
ILLINOIS			
Cairo	614	3188	3661
Chicago	965	4979	5425
Chicago (AP)	987	5375	
Chicago University	982	5135	
Moline (AP)	989	5565	
Peoria (AP)	936	5202	5362
Springfield	826	4446	4921
Springfield (AP)	876	4816	
INDIANA			
Evansville (AP)	706	3759	4031
Fort Wayne (AP)	1003	5247	5470
Indianapolis	835	4334	4872
Indianapolis (AP)	869	4610	
South Bend (AP)	1035	5469	
Terre Haute (AP)	835	4473	
IOWA			
Burlington (AP)	948	5368	
Charles City	1167	6676	6755
Davenport	980	5385	5604
Des Moines	1001	5701	5729
Des Moines (AP)	1010	5835	
Dubuque	1069	5943	6082
Keokuk	939	5062	5112
Sioux City (AP)	1095	6390	6178
KANSAS			
Concordia	824	4752	4900
Dodge City (AP)	744	4293	4559
Goodland (AP)	887	5064	
Topeka	763	4391	4620
Topeka (AP)	777	4582	
Wichita (AP)	704	4043	4242
KENTUCKY			
Lexington (AP)	743	3817	4303
Louisville	691	3550	4018
Louisville (AP)	691	3573	
Pikeville	614	2659	
LOUISIANA			
Baton Rouge (AP)	250	1063	1455
Lake Charles (AP)	202	966	
New Orleans	180	720	1171
New Orleans (AP)	207	778	
Int.Airport,Moisant	207	847	
Shreveport (AP)	311	1679	2043
MAINE			
Caribou (AP)	1395	8228	
Eastport	1165	6289	6836
Greenville	1409	8021	7935
Portland (AP)	1192	6308	6194
MARYLAND			
Baltimore	735	3423	4037
Baltimore (AP)	767	3593	
District Heights *	734	3585	
Frederick	599	3672	
Riverdale *	741	3729	
Tacoma Park *	734	3670	4346
MASSACHUSETTS			
Boston (AP)	961	4728	5087
Nantucket (AP)	968	4521	4769
Pittsfield	1213	6264	
Milton	1068	5332	
MICHIGAN			
Alpena	1287	6539	6898
Detroit (AP)	1070	5380	5685
Escanaba	1309	7128	7322
Grand Rapids	1073	5455	5813
Grand Rapids (AP)	1111	5805	
Iron Mountain *	1315	7536	
Lansing (AP)	1131	5889	
Marquette	1310	7144	7237
Muskegon (AP)	1128	5829	
Sault Ste. Marie(AP)	1427	7760	7779
Traverse City (AP)	1239	6492	
Ypsilanti (AP)	1066	5474	
MINNESOTA			
Duluth	1427	8223	8170
Duluth (AP)	1519	8727	
International Falls	1561	9591	
Minneapolis (AP)	1264	7241	
St. Cloud (AP)	1339	8081	7787
St. Paul (AP)	1269	7243	
MISSISSIPPI			
Jackson (AP)	334	1574	
Meridian (AP)	365	1704	2205
Vicksburg	328	1533	1977
MISSOURI			
Columbia	762	4183	4599
Columbia (AP)	797	4425	
Kansas City (AP)	767	4267	4520
St. Joseph (AP)	828	4820	
St. Louis	728	3794	4197
St. Louis (AP)	751	3950	
Springfield (AP)	731	3981	4146
MONTANA			
Billings (AP)	1072	6566	6237
Butte (AP)	1227	7957	
Glasgow	1391	8719	
Great Falls (AP)	1126	6986	
Havre	1256	8203	7328
Helena	1066	7322	6686
Kalispell	1066	7328	6769
Miles City (AP)	1218	7577	6690
Missoula (AP)	962	6868	6466
NEBRASKA			
Grand Island (AP)	972	5663	
Lincoln	912	5318	5382
Lincoln (AP)	936	5551	
Norfolk (AP)	1094	6326	
North Platte (AP)	996	5696	
Omaha(AP)	950	5590	5504
Valentine	1170	6422	6273
NEVADA			
Ely (AP)	980	6178	
Reno (AP)	794	5008	4729
Tonopah	728	4652	4922
Winnemucca	837	5359	5386
Las Vegas	255	2359	2520
NEW HAMPSHIRE			
Concord (AP)	1157	6345	6355
Mt. Washington Obs.	1823	10926	
NEW JERSEY			
Atlantic City	816	3656	4285
Newark (AP)	885	4253	4861
Trenton	856	4157	4636
NEW MEXICO			
Albuquerque (AP)	522	3607	4099
Clayton (AP)	759	4068	
Roswell (AP)	412	2930	3327
NEW YORK			
Albany (AP)	1166	5954	
NEW YORK (Cont.)			
Bear Mountain	1122	5724	
Binghamton	1097	5403	5893
Binghamton (AP)	1138	5708	
Buffalo (AP)	1133	5457	5819
Canton	1299	6754	7163
New York	860	3945	4613
Int. Airport	885	4185	
La Guardia Field	870	4460	
Oswego	1153	5591	
Rochester (AP)	1148	5641	5814
Schenectady	1176	6027	
Syracuse (AP)	1166	5671	5929
NORTH CAROLINA			
Asheville	652	3182	3792
Asheville (AP)	668	3399	
Charlotte	509	2460	2983
Charlotte (AP)	531	2637	
Greensboro (AP)	612	3143	
Hatteras	382	1631	2326
Raleigh	506	2447	3013
Raleigh (AP)	541	2732	
Wilmington	389	1718	2251
Winston-Salem (AP)	604	3052	
NORTH DAKOTA			
Bismarck (AP)	1353	8719	7845
Devils Lake	1469	9465	8796
Fargo (AP)	1365	8763	
Grand Forks	1480	9306	8671
Pembina (AP)	1597	9995	
Williston	1400	8739	8132
OHIO			
Akron (AP)	1032	5227	
Cincinnati	732	3660	4475
Cincinnati (AP)	812	4182	
Cleveland	976	4660	5283
Cleveland (AP)	983	4926	
Columbus	849	4313	4884
Columbus (AP)	883	4519	
Dayton (AP)	895	4684	4810
Sandusky	953	4690	5285
Toledo	1031	5254	5462
Youngstown (AP)	1057	5200	
OKLAHOMA			
Oklahoma City	489	3069	3409
Oklahoma City (AP)	518	3178	
Tulsa (AP)	545	3246	
OREGON			
Baker	902	6036	5961
Baker (AP)	930	6466	
Burns	954	6178	
Eugene (AP)	614	4299	
Meacham	1000	6547	
Medford (AP)	625	4205	3966
Pendleton (AP)	703	5158	
Portland	576	3914	3640
Portland (AP)	611	4381	
Roseburg	553	3660	3578
Salem (AP)	618	4273	
Troutdale	628	4421	
PENNSYLVANIA			
Allentown (AP)	939	4859	
Curwensville	1194	6036	
Erie	1041	4850	5420
Harrisburg (AP)	892	4464	4818
Park Place	1117	5742	
Philadelphia	788	3737	4229
Philadelphia (AP)	809	3932	
Pittsburgh	872	4199	4725
Pittsburgh (AP)	931	4530	5006
Reading	857	4202	4642
Scranton	998	5022	5431
Williamsport (AP)	1003	5112	5350
RHODE ISLAND			
Block Island	939	4254	4817
Providence	948	4656	5149
Providence (AP)	989	4945	
SOUTH CAROLINA			
Charleston	297	1266	1776
Charleston (AP)	330	1495	
Columbia	413	1886	2343
Columbia (AP)	420	1981	
Greenville (AP)	519	2615	2839
Spartanburg	516	2593	
SOUTH DAKOTA			
Huron (AP)	1258	7425	7026
Pierre (AP)	1275	7243	6477
Rapid City (AP)	1231	6590	6151
Sioux Falls (AP)	1232	7159	
TENNESSEE			
Bristol (AP)	674	3298	
Chattanooga	447	2248	
Chattanooga (AP)	510	2622	3013
Knoxville (AP)	539	2827	3373
Memphis (AP)	500	2599	2899
Nashville (AP)	557	2990	3337
TEXAS			
Abilene (AP)	310	2061	2439
Amarillo (AP)	555	3357	3794
Austin (AP)	226	1328	1628
Big Spring (AP)	290	2061	
Brownsville (AP)	49	271	616
Corpus Christi (AP)	95	492	947
Dallas (AP)	320	1944	2261
Del Rio	107	901	1467
El Paso (AP)	221	2094	2413
Ft. Worth (AP)	305	1986	2241
TEXAS (Cont.)			
Galveston	137	625	1146
Galveston (AP)	137	621	
Houston	167	814	
Houston (AP)	179	860	1277
Laredo	78	487	
Lubbock	464	2943	
Palestine	282	1526	1977
Port Arthur	167	806	1313
Port Arthur (AP)	215	1007	
San Angelo (AP)	275	1809	
San Antonio (AP)	189	1105	1394
Wichita Falls (AP)	373	2436	
Waco (AP)	272	1661	
UTAH			
Milford	775	5510	
Salt Lake City	711	4607	4892
Salt Lake City (AP)	741	5009	5247
VERMONT			
Burlington (AP)	1280	6495	6912
VIRGINIA			
Alex.Epis.H.S. *	704	3397	
Cape Henry	544	2456	3145
Falls Church *	742	3508	
Lynchburg (AP)	682	3425	3688
Norfolk	534	2391	3043
Norfolk (AP)	559	2620	
Potomac Yards	649	3143	
Richmond	606	2937	3564
Richmond (AP)	631	3155	
Roanoke (AP)	687	3448	
Urbanna	625	3018	
WASHINGTON			
Ellensburg (AP)	870	6446	
Kelso	659	4679	
North Head	652	4371	4122
Olympia (AP)	719	4926	
Port Angeles	692	5105	
Seattle	619	4131	3920
Seattle (AP)	635	4363	
Spokane (AP)	901	6359	5425
Stampede Pass	1158	7952	
Stevenson	716	4954	
Takoma	655	4393	4100
Tatoosh Island	705	4980	4516
Walla Walla	634	4785	4314
Yakima (AP)	750	5701	4958
WEST VIRGINIA			
Elkins (AP)	914	4624	5024
Huntington (AP)	661	3276	
Parkersburg	788	3910	4412
WISCONSIN			
Green Bay	1256	7074	6855
La Crosse	1155	6459	6606
La Crosse (AP)	1225	7046	
Madison	1160	6310	6477
Madison (AP)	1151	6450	
Milwaukee	1100	5899	6019
Milwaukee (AP)	1107	5984	
WYOMING			
Casper (AP)	1051	6337	
Cheyenne (AP)	1035	5855	6191
Lander (AP)	1015	6445	7009
Rock Springs	1016	6476	
Rock Springs (AP)	1117	6905	
Sheridan (AP)	1122	6786	
ALASKA			
Anchorage (AP)	1156	9578	
Annette Island (AP)	832	6204	
Barrow	2385	14747	
Bethel (AP)	1359	10134	
Cordova (AP)	1040	8323	
Fairbanks (AP)	1464	12029	
Galena (AP)	1616	12118	
Juneau (AP)	997	7942	
McGrath (AP)	1515	12002	
Northway (AP)	1729	13391	
Yakutat (AP)	1027	7901	
Gambell	1842	10357	
St. Paul Island	1129	7996	

The "base" for computing heating degree days is a mean daily outdoor temperature of 65°. Heating degree days are obtained by subtracting the mean daily temperature from this base, i.e., a mean daily temperature of 53° makes 12 heating degree days. If the mean daily outdoor temperature is equal to or greater than 65°, there are no heating degree days. Fuel requirements are related to heating degree days; therefore, a comparison of the accumulated current heating degree days with the long period averages should show, in general, whether fuel requirements have been above or below normal.

*. Data from cooperative stations.

Table 4

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Collinsville, Lauderdale County, Miss.	1	Early a.m.			0	0	$15,000		Tornado	High winds and hail nearby areas. Five homes damaged; one barn destroyed.
Milwaukee, Wisc.	1	1:30 p.m.					3,500		Wind	
Lewisburg, (2 miles north of), W. Va.	1								do	Twelve telephone poles blown down.
Richland Point, Hooper Island, Md.	2	3:30 p.m.							do	Tugboat HUSTLER, out of Baltimore, sank in 20 feet of water after rudder damaged, Wednesday night by high seas. All five crewmen safe.
Patapsco River off Fort Carroll, Md.	2	P.m.							do	A 50-foot supply craft damaged after high waves nearly capsized her. Craft towed into Pier by police launch.
Frederick, Md.	2						1,500		do	At Frederick Airport, strong winds caused a small plane to crash while landing.
Baltimore, Md.	2					2			do	Many trees fell in various sections of city. A feed wire of Gas and Electric Company's lines damaged b fallen tree. Woman and baby injured when a large metal sign blew off store and struck them.
North Point Creek, Essex, Baltimore County, Md.	2								do	A transformer left dangling in mid-air about to fal on nearby houses, by heavy winds.
New York, central portion	2-3						25,000		Wind and snow	Cold weather with high winds and falling snow produced blizzard-like conditions in Onondaga, Oswego Cayuga, Tompkins, Cortland, Madison, Oneida, Otseg Chenango and Wayne counties. Many secondary roads closed by drifts of 10 to 15 feet in depth. About 150 schools closed and many autos marooned. One p son died from heart attack after shoveling snow. Property loss mostly result of auto accidents.
King and Snohomish Counties, Wash.	3-4	Early a.m. 3d, to late p.m. 4th.							Rain and local floods	Very heavy rains, torrential in places, occurred ov a large part of western Washington, reaching maximum effects in eastern portions of central and low Puget Sound area. Due to rapid rises in rivers he ing in the western Cascade Mountain watersheds, flooding occurred in the lower valleys of Snohomis Snoqualmie, Green, and Cedar Rivers. At Seattle, b tween 4:30 a.m. and 12:30 p.m. of 3d, 2.08 inches c rain fell, flooding storm sewers, streets, basement and considerable areas of residences on low ground. Traffic heavily impeded both by flood, and in places by earth slides. Crop damage small because of early season and few spring plantings. Damage in Seattle and suburban areas may exceed $25,000.
Owens River Valley, Calif.	5	10:45 a.m. -1:30 p.m.	†100	20			15,000	$200	Winds and fire	Windstorm affected entire Owens River Valley. Two calves burned in grassfire; automobiles sandblasted three cars damaged by falling trees; power and telephone lines forced down; trees uprooted; buildings damaged by falling trees; windows blown in; roofs lifted from buildings, etc. Ten percent of total damages estimated due to fire. Storm moved northeastward across Owens Valley.
Kansas, western two-thirds	6	During day			2				Blowing dust	Visibility occasionally lowered to 1/8 mile or less. Dust drifted 2 feet deep locally in southern Osborn County. Wheat damage generally light. Fatalities in Rice and McPherson Counties attributed to reduce visibilities on highways. Wind speed for fastest mile at Dodge City 65 m.p.h. from northwest. Winds over central and west generally reached 50 to 60 m.p.h.
Northern Phillips and Valley Counties, Mont.	6								Blizzard	
Colorado, eastern portion	6-7	Midmorning 6th-evening 7th					20,000	50,000	Winds	Strong winds swept the eastern plains. Maximum speeds ported as from 30 m.p.h. to 50 m.p.h., with gusts estimated from 70 to 80 m.p.h. at a few points. Greatest damage to grain fields in dry-farming area. Blowing soil in most sections, while areas with limited visibility were few. Some damage to buildings, roofs, haystacks, car windows, and large billboards.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Minnesota, northwestern, west-central, and southwestern counties.	6-7						$100,000		Glaze, sleet, snow, and wind.	Many poles and wires down. Communication and electric power services seriously disrupted. Traffic of all kinds delayed; some side roads blocked; some schools closed for several days. A number of plate glass windows blown in; considerable minor damage to property from wind. Branches of trees broken off.
North Dakota, entire State	6-7						$1,000,000		Sleet, ice, and blizzard	Rain and freezing rain followed by blizzard conditions in east. Accumulation of ice on communications and power lines resulted in over 10,000 telephone, telegraph, and power line poles broken. More than a week required to restore service to last of isolated towns. Bell Telephone Co. estimated damages at $600,000, with 5500 poles down. Communications in and out of Bismarck practically out until Thursday evening. Heaviest damage in southeastern section of State, but major damage in nearly all sections except extreme northwest. One of the worst sleet storms.
South Dakota, entire State	7	1:30 a.m. to midnight			2		2,000,000		Wind and snow	Except for duration and extreme low temperatures, this storm was one of the most, if not the most, severe blizzards of all times in eastern third of State. Gale winds with 70 to 100 mile gusts combined with heavy snowfall brought transportation to a standstill. Winds damaged airplanes, windmills, automobiles, buildings, and power and communication lines. Snow caused livestock losses mostly in southeast.
Nebraska, practically entire State	7	All day			7	Many	2,750,000	$35,000	Blizzard	General intense cyclone with snow caused blizzard conditions in central and eastern portions. Wind speeds near or equalling the record in eastern part. Gusts estimated at 100 m.p.h. Great damage to windmills and grain bins; buildings more or less damaged over large area; wires blown down and power service interrupted; much damage to glass. Soil erosion in wheat fields.
Kansas, entire State	7	During day							Winds and blowing dust	Dust conditions prevailed over entire State. Visibilities lowered locally to 1/4 mile or less principally in west and central, where high winds also caused minor property damage. Building losses in Sheridan County totalled $5,000. Indeterminate crop losses not expected to be material in most localities. Wind velocities ranged from 40 to 50 miles upwards in east and central to 73 m.p.h. in west at Dodge City.
Arkansas	7				1				Winds	General over State during afternoon and evening. Local damage to telephone lines in northern portion. Some property damage in Pine Bluff. A sailor killed when wind toppled a tree onto barge on which he was working on Mississippi River near Helena.
Shelby, Cleveland County, N.C.	7					3	500		Electrical	Lightning struck farm house, causing considerable damage. Bolt ran along power line to barn killing two milk cows.
Iowa	7-8	Afternoon 7th morning 8th							Wind and snow	Wind speed reached 70 m.p.h. at Des Moines, and 82 m.p.h. at Council Bluffs. Since temperatures were not too low and snowfall amounts light, intensity of storm considerably lessened. Blowing snow night of 7th lowered visibilities at times to near zero and was the cause of several highway accidents; traffic at standstill for about 12 to 18 hours. Some freezing rain in northern and western sections added to hazardous conditions. Around 200 breaks reported to long distance telephone lines. Heaviest damage to property in western Iowa.
Cairo, Ga.	8	Early a.m.					2,500		Thunderstorm	High winds ripped off part of bank roof and skylight, leaving opening in roof through which heavy rains flooded interior. Reports indicated damage of several thousand dollars to truck crops and tung nuts.
Alabama, southeastern portion	8	Early a.m.				1	550,000		Thundersqualls	At Montgomery, around 2:15 to 2:30 a.m., $500,000 damage, mostly to aircraft at Maxwell Field. Other damage to scattered buildings in north Montgomery and to a high voltage line near Kilby Prison near north Montgomery. Winds over southeastern part of State, locally strong enough to do building and other damage.
Columbia, S. C.	8	Afternoon					500		Wind	Some signs, wires and tree limbs blown down.
Baltimore, Md.	9	A.m.-p.m.							do	Gusts up to 57 m.p.h. smashed windows, uprooted trees, and tore down signboards in many sections of city.
Garrett and Allegany Counties, Md.	9								Snow	Roads in Garrett County covered with ice and snow. Some sections of highways in mountains of Allegany County slippery.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Nebraska, southeastern portion	10	Afternoon				Several			Rain and glaze	Traffic hazardous; telephone communications interrupted.
Stone Coal Gap, Botetourt County, Va.	10	11:30 p.m.				1	$2,000		Wind	Metal roof ripped off and one side of a two-story cement block residence collapsed; four upstairs rooms wrecked, partitions knocked down; furniture badly damaged; nearby utility pole snapped off in two places. One person suffered facial cuts from falling cement block.
Wisconsin, entire State	10-11	During night			3	10			Snow and wind	Numerous traffic accidents attributed to snowstorm and slippery streets and highways.
Tulsa (near), Okla.	11	After midnight					100,000		Wind	Forty-five expensive house trailers at trailer factory destroyed or damaged. Winds at airport nearby registered 75 to 80 m.p.h.
Winslow-Holbrook area, Ariz.	11	Afternoon and evening	†40	100			10,000		Wind and dust	Sustained wind speeds of 50 to 55 m.p.h., with gusts to 70 m.p.h. Visibility restricted by blowing sand and dust to 1/4 mile, lowering to zero at times between 1:53 and 5 p.m. Some roofs blown off in Winslow; paint sandblasted, windshields pitted, and some automobile engines damaged by driving in heavy dust. Highway traffic stopped by police during height of storm, due to blowing dust restricting visibility.
Meridian (8 miles northwest of), Miss.	12	7:45 p.m.	600	15			2,000		Wind	Two homes and four barns damaged.
Newton County, Miss.	12	Late p.m.					5,000		do	Four homes damaged.
Jasper, Walker County, Ala.	12						20,000		Thunderstorm, wind, and hail	Red Cross reported 200 homes damaged.
Montgomery, Ala.	13	9:20-9:25 a.m.					3,000		Thunder-squall	Many uprooted trees and some other damage in suburban area of east Montgomery.
Tangipahoa Parish, La.	14	Early a.m.						$200,000	Freeze	Moderate damage to strawberries and severe damage to bean crop.
Tangipahoa Parish, La.	15	12-1 p.m.	†8	28				1,000,000	Hail	Strawberry crop destroyed in 200 square mile area, centering around Amite and Independence. Hail reportedly lay as much as 4 inches deep in places and ranged up to as large "as a man's fist", evidently several stones frozen together.
Altus (in and near) Jackson County, Okla.	15	Afternoon					500		Wind	Path eastward. Not a tornado as it did not come from a cloud although there was a "whirling" effect.
Marineland, Fla.	16	10:15-10:16 a.m.	150		0	0	2,000		Tornado	Storm moved eastward passing directly over the Marine Studio's tanks and grounds. Studio employees and visitors took refuge in concrete and steel oceanarium. One frame building lost its roof and two others suffered minor damage. A row boat lifted from Inland Waterway Canal and deposited 200 feet away. Some lawn furniture blown into surf and one chair found in top of palm tree.
North Los Robles area, east of Red Bluff, Calif.	17	7 a.m.	300	1 1/2			5,000	5,000	Winds	About 25 almond trees uprooted; buds removed by wind; an oak tree forced down demolishing a private dwelling. Windstorm and damage appeared to have occurred under a cumulonimbus cloud that accompanied fast moving cold front with wind shift reported at Red Bluff Airport at 6:59 a.m. Strongest gust reported at airport was 32 m.p.h. at 6:00 a.m.
Beverly, Mass.	18	1-6 p.m.			1				do	Sailing canoe overturned in Beverly Harbor.
Forks, Mont.	18								Snow	Snow drifted badly, limiting visibility to 1/4 mile.
Kansas, eastern two-thirds	18-19	P.m. of 18th to a.m. of 19th					10,000		Glaze	Loss from broken telephone wires. One-thousand wires broken in vicinity of Emporia to Cottonwood Falls. Sleet and glaze caused locally hazardous highway conditions in east and central.
Calcasieu Parish, La.	19	7:30 a.m.			0	2	15,000		Tornado	Moved northeastward.
Schuler Oil Field (15 miles west of El Dorado), Ark.	19	Morning					113,000		Electrical	Lightning struck a 55,000 barrel oil storage tank in Schuler Oil Field; resulting fire destroyed tank and contents.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Donaldsonville, La.	19	1:15 p.m.	50	1	0	0	$18,000		Tornado	Moved northeastward.
Lafitte-Jesuit Bend area, La.	19	1:15 p.m.	25	15	0	0	5,000		do	Observed by private pilot; moved northeastward.
Shellman-townsend area, Ga.	20						*5,000		Thunderstorm	One or more thunderstorms moved northeastward, affecting Shellman Bluff and Townsend areas; heaviest losses at Townsend. Many trees blown down or broken by high winds. Power lines brought down, mostly from falling trees. A number of buildings damaged, one house removed from its foundation by high winds. Considerable hail fell, some size of hen eggs; hail caused some damage to an automobile and some crop losses.
Somerset, Cumberland and Monroe Counties northward, Pa.	20-24	Evening 20th to noon 21st; afternoon 22d to evening 23d			1	19			Snows	Five to 15 inches of snow fell in mountainous sections of counties. Heavy rains fell over area southeast of mountains where temperatures higher. Bloserville without power for 13 hours while many phones out for at least 4 days. Much tree and shrubbery damage from heavy wet clinging snow at Carlisle, where 12 to 15 inches fell but maximum depth 10 inches. Mifflintown reported $6,800 damage from trees falling on autos and to barn roofs that collapsed from weight of heavy snow. Many snow-clogged roads. Heavy damage to power and phone lines in Somerset and McKean Counties. In Galeton area heavy snow broke countless tree limbs and wires, clogged highways, and caused factories to close. Clearfield County reported $10,000 damage to power and phone lines. Clinton County reported 7 injured; much damage in Lock Haven area, with power and phone lines down, orchards damaged, schools closed; rail service almost nil for 2 days. Up to 3 inches of snow accumulated on power lines. In 10 mile wide strip from Jersey Shore to Hughesville, $35,000 damage reported to buildings, equipment, debris, power and phone lines. Woman injured in Lock Haven when "live" wire hit her. Williamsport streets nearly impassable due to heavy snow and fallen trees and wires. New York Central, Pennsylvania and Reading Railroads seriously disrupted. Sugar Valley area isolated for 3d time in a month. Troutrun and Loyalsock exchanges without power. Pennsylvania Railroad at Williamsport reported this as worst storm in nearly 20 years, with 93 poles down between Harrisburg and Lock Haven and tracks blocked at 17 different places, worst at Dalmatia and Montgomery. Reading Railroad reported 150 poles across its tracks between Shamokin and NewBerry. A large warehouse collapsed in Williamsport. Eagles Mere without phone service for 10 hours, and without power for 36 hours. Observer reported 8 inches of snow between 7 a.m. and 10:30 a.m. on 21st. In Milton area, 50 percent of power lines and 200 phone lines out of service. Countless tree limbs down, many roads impassable. Trains ran hours late. School buses halted. At Trevorton, schools closed; thousands of trees damaged, and snow-clogged roads prevented miners and others from getting to work. Stalled cars and trucks hampered snowplows and travel. 75 persons stranded overnight near Mt. Pleasant Mills due to snow-clogged roads. In Sunbury area, 3000 customers without power service and 1000 telephones out. Pennsylvania Railroad through Sunbury completely at a standstill for 11 hours with 3 trains marooned along line. No trains running between 9:24 p.m. 22d and 10:20 a.m. 23d. Several communities between Harrisburg and Sunbury reported up to 18 inch snowfall. Auto and truck collided during heavy snow. One death resulted from injuries from collision; 4 others in car and truck injured. Traffic accidents in Carlisle-Harrisburg area on snow-covered highways, injured 6 others. Truck skidded into creek, injuring driver, in Luzerne County. Numerous other highway accidents. Snow depth reached 29 inches at Pleasant Mount for maximum reported depth. Many roads blocked and schools closed in area. Wellsboro reported power and phone lines and trees damaged by heavy snow. Honesdale reported 12 to 18 inches of snow in 13 hours. Towanda reported schools and industries shut down; 90 percent of area without power and phone service, some sections out for 2 days and more.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Little Calliou Terrebonne Parish, La.	21	1:45 p.m.					2,000		Hail	
Covington (14 miles north of) La.	21	5:30 p.m.	†1	2 1/2			5,000	$300,000	do	Occurred in same general area as storm of 15th, but heaviest and most damaging hail occurred further south and in the tung groves, destroying blooms and the year's nut crop.
Panama City, Fla.	21					Few	2,000,000		do	Heavy hail at Tyndall Air Force Base near Panama City; stones up to 2 1/2 inches in diameter ripped through airplane wings, smashed glass, and dented automobiles. A few people treated for cuts and bruises, but no serious injuries reported.
Melbourne, Fla.	21								do	Hail fell for 15 minutes with some stones of ice-cube size. Little damage.
Haverhill, Mass., and northeastern Mass.	23-24	4 a.m. 23d - noon 24th					3,000		Rains	Snow, becoming slush with heavy rains, blocked drains, flooded streets and cellars, and in Haverhill, Mass. eroded highways considerably.
Arkadelphia, Ark.	24	Afternoon					*2,000		Hail	Large hail, some stones as large as baseballs. Damage to windows.
Parkdale to Eudora, Chicot County, Ark.	24	Late afternoon			1				Hail and wind	Several school buildings damaged by wind and hail. Two farm homes destroyed. Several head of livestock killed by hail.
Bucksnort Community (near Fordyce), Ark.	24	3:14 p.m.	900	10			*10,000		Hail	Stones averaged 1 inch in diameter, with some as large as 2 inches. Roofs damaged. Several pigs killed.
Warren, Ark.	24	4 p.m.					*50,000		Hail and wind	Principal damage to cars, homes, and stores; some fruit trees stripped.
Portland, Ark.	24	4 p.m.	†4				*5,000		do	Stones small. Principal damage to roof and skylight of building.
Tucson, Ariz.	25	9:30 a.m. - 8 p.m.	†40	40		3	2,500		Wind and dust	High winds blew down numerous power and telephone lines, as well as a number of large trees. Some roofs damaged by wind and flying limbs. Lowered visibility due to blowing dust resulted in several automobile collisions. A light airplane damaged while making a landing during windstorm.
Colorado, north-central and eastern portions	25-26	Noon 25th - midafternoon, 26th			1	3	25,000	50,000	Winds, blowing soil and snow	Strong winds prevailed over eastern plains and north-central, accompanied by light snow during close of period. Damage mainly to small buildings and grain. Transportation halted for several hours on drifted mountain passes; travel slowed over the plains by reduced visibility, resulting in one death and several injuries from automobile accidents.
North Dakota, entire State	25-28				2				Blizzard	Winds gradually increased with northeastward movement of an extensive and deepening low pressure area to the southwest. By the 26th moderate to heavy snow was falling over south half of State, except rain in east. Accumulations up to 20 inches of snow in south-central and southwest. One of worst blizzards to ever hit these areas. Transportation entirely tied up, and numerous cars stalled along highways. Many persons found refuge at farms and many others stayed with their cars for shelter from the heavy, wet snow. Fargo reported its heaviest 24-hour amoun of rainfall ever recorded in March. Snowfall at many stations was greatest ever recorded in any March on record. Fortunate aspect of this storm was moderate temperatures during the major portion of storm. Temperatures did not fall much from around 30° until Monday afternoon and night. Storm blew itself out completely by Tuesday evening, and temperatures then fell to near zero. One death occurred near Devils Lake due to heart failure. The other occurred near Streeter; man's body found frozen about 5 miles from his stalled car. Feed stocks isolated at some farms; cattle suffered in some areas as result. Some cattle losses.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Minnesota, Chisago, Washington, Ramsey, and Dakota Counties	26	2 p.m.	†2	50			$10,000		Hail	Heavy hail that accompanied a severe thunderstorm damaged roofs of buildings, greenhouses, and automobile tops; many windows and neon signs broken. Storm moved northeastward.
Kansas, entire State	26	During day			5	Many			Wind and blowing dust	High winds with strong gusts from 50 m.p.h. in west to 70 to 80 m.p.h. in east and central raised dust sufficient to lower visibilities to zero in a number of localities. Highway travel in numerous areas suspended. General minor property damage occurred especially to roofs. Building losses in Jefferson County near Valley Falls were $6,000. Crop losses limited in most instances, although drying effects of high winds with low humidity marked. Reduced visibilities caused two highway fatalities in McPherson and in Saline County, with one death in Haskell County. Record low barometer readings at Concordia and Topeka.
Wisconsin, southern portion	26	Afternoon and evening					37,200	$2,000	Electrical and hail	Large hailstones penetrated some roofs and smashed many windows in Linden, Iowa County. A bolt of lightning started a fire which burned home in Boscobel, Grant County. Lightning destroyed barn near Omro, Winnebago County, killing 56 cattle, 2 horses, and 9 pigs. At Oxford, Marquette County, 2 barns struck by lightning and burned, with loss of 12 head of cattle, 1 pony, and much hay.
Rock Island-East Moline area, Ill.	26	6:30 p.m.					3,750		Hail	Most damage to glass in greenhouses. Some hailstones 1 inch in diameter.
Arkdelphia, Ark.	26	7:30 p.m.	150	15	0	3	35,000	200	Tornado	Three homes and 13 farm buildings destroyed. Six homes and 16 other buildings damaged. Some livestock killed. Storm moved northeastward.
Violet Hill Community, Izard County, Ark.	26	7:31 p.m.	200	6	0	1	100,000	3,250	do	Storm moved northeastward, destroying church, large consolidated school building, 30 houses, and many barns.
Little Rock, Ark.	26	8:30 p.m.	600	10	0	7	*500,000		do	Storm first struck on southwestern outskirts, where it damaged screen of Drive-in Theater. Two cars in theater lot overturned, injuring 5 persons. Storm then progressed northeastward through residential district, where it caused considerable damage to roofs. It then struck business district of city, causing extensive damage to roofs, window and plate glass, signs, and brick and masonry parapits. A large radio antenna mast toppled from roof of Gazette Building. Upon leaving business district storm crossed Arkansas River into North Little Rock where it did considerable damage to roofs, trees and signs, and injured 2 persons. Principal damage by high winds, also considerable water damage by rain entering buildings through torn roofs and broken windows. Crop damage very slight. Some small hail.
Florissant, Mo.	26	8:55 p.m.	100	1			10,000		Wind	Storm moved east-northeastward. All damage in line with direction of storm path. Greatest damage to windows, television antenna, guttering, trees, small sheds, and well tops.
Ellsinore, Mo.	26	9 p.m.	200	1	0	2	30,000		Tornado	Storm moved northeastward after crossing center of Ellsinore. Most damage to dwellings in town.
Hickory Plains, Ark.	26	9:15 p.m.	†1	15	0	15	*150,000		do	Apparently a continuation of storm that struck Little Rock. First struck at 9:15 p.m. and continued to 11:30 p.m.; moved northeastward doing extensive damage to farm buildings, farm equipment, livestock, and timber. Because of season, damage to crops very small. Some moderate hail.
Gregory-McClelland area, Ark.	26	11:30 p.m.	800	5	0	2			do	Apparently a continuation of storms that struck Little Rock and Hickory Plains. About 10 houses demolished or damaged extensively. Several barns destroyed. Storm moved northeastward.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Princeton, Ind.	26	11:30 p.m.	†1				$5,000		Hail	Windows, greenhouse panes and neon signs broken. Hail up to 1 1/4 inches in diameter.
Lincoln area, Ill.	26	11:30 p.m.					1,500		Wind	Two store display windows smashed, and considerable other minor damages; several trees downed.
Hamilton County, Ill.	26	11:45 p.m.					5,000		do	Many roofs damaged, and windows broken; several trees uprooted.
Kansas City, Mo.	26				2				do	Two boys crushed to death by falling tree.
Amity, Mo.	26						12,600		do	High wind caused considerable damage in northwestern section of State. Local damage small, but slight damage to windows, rooftops, etc., over large area. Damage at Amity resulted from a destroyed farm home and from wind driven grass fires that burned out an estimated 1000 acres.
Wyoming, northeastern portion	26								Snow	Roads blocked by drifting snow. Some loss of livestock, especially new-born lambs and calves, but loss believed to be light.
Chester County, Tenn.	26						500		Wind	Four outbuildings destroyed.
McNairy County, Tenn.	26						3,500		do	Two homes destroyed, eight homes damaged, and five outbuildings destroyed.
Augusta, Ark.	26-27	10 p.m. to 4 a.m.					*15,000		Wind, hail, and rain	No evidence of a tornado. Principal damage in Augusta where 20 buildings damaged, mostly by falling trees. Some heavy hail but damage to crops slight.
Minnesota, northern counties	26-27						250,000		Glaze, sleet, snow, and wind	Many poles, wires, and radio and television aerials down; communication and electric power services seriously disrupted. Extensive damage in Duluth area where gusts of wind up to 85 m.p.h. accompanied one of most severe ice storms of record. Hundreds of trees down or branches broken off in Duluth area when phenomenal ice accumulations occurred due to more than 24 hours of continuous icing conditions. Traffic of all kinds delayed. Many roads and highways blocked by snow drifts. Some schools closed for several days. Considerable minor damage to property from wind. A number of automobiles ditched. Some damage to airplanes on ground. Near-record low barometric pressure attended passage of storm over State.
South Dakota, western portion	26-27								Wind and snow	Heavy accumulation of snow disrupted transportation and some power and communication facilities.
Forks, Mont.	26-27								Snow	Drifts 4 and 5 feet high around buildings. All roads blocked.
Frazer, Mont.	26-27								do	All roads blocked in this vicinity.
Nebraska, entire State	26-28								Wind and dust	Winds reached gale force. Pressure lowest of record at eastern stations. Some reports of blizzard condition in north-central counties.
McAlester (south of), Pittsburgh County, Okla.	27	3 a.m.	75		0	0	1,000		Tornado	Broom handle factory building demolished. Storm traveled southeastward. Funnel not observed but termed a tornado by local residents because of well defined path of destruction and character of debris.
Morehouse Parish, La.	27	5 a.m.					15,000		Wind	Storm covered wide area.
Concordia Parish, La.	27	5 a.m.				2	6,000		do	Town of Ferriday most affected.
East Carroll Parish, La.	27	5 a.m.			0	2	49,000		Tornado	Believed to be same tornado which later struck in Humphries County, Miss., after passing over thinly populated country.
Rapides Parish, La.	27	6 a.m.					5,000		Wind	This series of squalls and tornadoes on 27th destroyed 10 homes and 14 other buildings, and damaged 28 homes and 4 other buildings.
Harrisburg, Pa.	27	6:25 a.m.			1	5			Fog	Truck rammed parked bus, killing passenger on bus and injuring 5 others.
Iberia Parish, La.	27	8 a.m.			1	2	5,000		Wind	One person electrocuted by broken high voltage wire. Storm general, rather than local.
Jackson (near) Hinds County, Miss.	27	7:45 a.m.		13	0	8	300,000		Tornadoes	A sharp trough with a strong, cold front began moving across Mississippi early on this date. High winds swept ahead of the front and tornadoes developed at many points ahead of the front. In Hinds County two distinct tornadoes occurred and it may be that these moved on, one through Madison, Leak and

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
										Neshoba Counties and the other through Rankin, Scott into Newton county, but details insufficient to prove this. Since proof is lacking all are not listed as tornadoes - the criterion being the damages inflicted. All definite tornadoes reported moving in direction toward northeast or east-northeast. Twenty-six homes and 29 other buildings destroyed; 67 homes and 21 other buildings damaged in all these storms on March 27. Destruction and damage to timber not obtainable. No crops growing. Hail over wide area of State.
Brookhaven (near), Lincoln County, Miss.	27	8:30 a.m.					$10,000		Wind	
Waverly (near) Humphreys County, Tenn.	27	8:30 a.m.				1			do	Damage to roofs, trees, power and telephone lines in a section about 4 miles east of Waverly.
Newton County, Miss.	27	9 a.m.			0	2	10,000		Tornado	
Forest (near) Scott County, Miss.	27	9 a.m.	300		0	0	70,000		do	
Attala County, Miss.	27	9 a.m.			0	0	14,000		do	
Leak County, Miss.	27	9 a.m.			0	3	22,000		do	
Neshoba, Arlington to Preston, Miss.	27	9:30 a.m.			0	0	46,000		do	
Laurel, Jones County, Miss.	27	10 a.m.					8,000		Wind	
Covington County, Miss.	27	10 a.m.					5,000		do	
Panola County, Miss.	27	Early a.m.					5,000		do	
Humphries County, Miss.	27	Early a.m.			1	1	30,000		Tornado	
Tishomingo County, Miss.	27	Late a.m.			0	2	46,000		do	
Clay County, Miss.	27	Late a.m.			0	0	10,000		do	
Alabama, entire State	27	Mid-morning to late afternoon					1,000,000		Wind	Southerly winds, with gusts 40 to 60 m.p.h. or more, worst over south and east-central portions. Damage mostly to roofs and trees. Persistence of wind loosened roofing material which otherwise would not have yielded to winds of like force.
Paul's Chapel Community, Montgomery County, Tenn.	27	A.m.	100				1,000		do	Damage to roofs; power and telephone service disrupted.
Maury County, Tenn.	27	A.m.							do	Considerable damage to buildings, trees, and power and telephone lines.
Newbern, Dyer County, Tenn.	27	A.m.					3,000		Wind and hail	Damage to houses, and power and telephone lines.
Nashville area, Tenn.	27	Noon					4,000		Wind and rain	Houses unroofed; trees toppled; telephone and power lines damaged.
Colfax Township, Champaign County, Ill.	27	4:30 p.m.	50	3	0	0	1,000		Tornado	Several outbuildings destroyed on one farm, and power lines downed. Funnel reported to be a "whitish" color.
Caesars Head, S.C.	27	5 to 9 p.m.					800		Wind	Damage mostly to dwellings.
Cookeville and Monterey areas, Putnam County, Tenn.	27	P.m.							do	Damage to power and telephone lines, roofs and trees.
McMinnville (near), Warren County, Tenn.	27	P.m.			0	0	2,000		Twister	Small twister occurred about 5 miles west, traveling northeastward. Damage to buildings, trees, and power and telephone lines.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Boyle, Pulaski, Wayne, Harlan, McCreary, and Fayette Counties, Ky.	27	P.m.				1	$80,000	$1,000	Wind, rain, and electrical	Severe windstorm accompanied by rain and occasional lightning. Major damage by wind which reached a speed of 60 m.p.h. in some localities. Most damage at Somerset, Pulaski County. Roofs torn off homes and business establishments, permitting rain to cause additional damage to stock. Utility service hampered when wind blew down power and telephone lines. Trees blown down, hindering movement of traffic. Lightning hit a house near Somerset.
Superior, Douglas County, and southward to north of Solon Springs, Wisc.	27	During day					2,000		Rain, sleet and snow	About 500 power and telephone poles down in Superior area. Several schools closed in Douglas and western Bayfield Counties, due to freezing rain, sleet, and snow resulting in slippery highways.
Georgia, entire State	27	Day and night					50,000	10,000	Wind	Persistently high winds along a front of many miles crossed the State. Winds persistently steady at 25 to 35 m.p.h., with gusts exceeding 60 m.p.h. at many localities. Property damages not excessive in any one locality but general minor damages. Crops similarly affected. One of the worst features for crops was the blowing away of considerable rich topsoil in southern part of State, producing need of much replanting.
Columbus, Ind.	27						3,000		do	
Franklin, Ind.	27						10,000		do	
Winchester, Ind.	27						500		do	Some trees down. Roofs damaged.
West Virginia western and north-central counties.	27-29								do	Strong to gale force winds blew down 8 television towers near Parkersburg and caused scattered damage to buildings, trees and signs throughout area; some local damage to telephone and power lines. In south-central Tyler County on 27th, a large fire, fanned by high winds, did much damage to trees and fences over approximately 1,000 acres; fire reported to have started from sparks from unscreened stove pipe at farm home.
Pittsfield, Mass., and Berkshire County, Mass.	28	11-12 p.m.					1,000		Electrical	Power lines and radio station in Berkshire County knocked out by lightning; elsewhere damage slight although electrical display covered all New England.
Waverly, Pike County, Ohio	28								Wind	Considerable damage to roofs, trees, and public utility lines.
Lancaster and Montgomery Counties, Pa.	30								Rains	Conestoga Creek flooded Brownstown-Talmage road near Lancaster, and washed out bridge on Route 772. At Collegeville, Perkiomen Creek rose nearly 9 feet, flooding adjacent lowlands.
Bradford County, Pa.	30								Rain and flood	Two bridges over Chemung River near Athens closed by high water, lowlands flooded, and some dike works threatened.

† Miles instead of yards.
* Crop damage included with other property damage.

PRELIMINARY TOTALS BY STORM TYPES FOR ABOVE TABULATIONS.

Type	Deaths	Injuries	Damage
Tornado	1	50	$ 1,474,450
Wind	10	10	3,232,080
Hail		few	3,383,750
Blizzard	9	many	3,285,000
Sleet		few	590,500
Snow	6	32	1,237,800
Rain			65,500
Freeze			200,000
Electrical		3	161,700
Fire			1,520
Blowing dust	5	many	
Fog	1	5	
Total	32	100	$13,632,300

RIVER STAGES AND FLOODS
MARCH 1950

The annual spring break-up began during the latter part of March in the Red River of the North and in streams in the Missouri Basin in South Dakota and in the Upper Mississippi Basin in Minnesota. In the Upper Mississippi Basin maximum floods occurred in the Root and Zumbro Rivers with the highest flood in at least 15 years on the latter river. Ice break-up along the main stem of the Missouri was orderly and progressed upstream to 30 miles north of Chamberlain, S. Dak., by the close of the month. The flood in the lower Mississippi that began during February compared favorably with the flood of 1929. Moderate to heavy flooding occurred in several streams in the East Gulf of Mexico drainage during March with the Oostanaula River in Georgia reaching a near record stage.

ST. LAWRENCE DRAINAGE.--Flooding developed in the St. Lawrence drainage in the Lake Michigan, Lake Huron and Lake Erie drainage areas during the latter part of March due to snow and ice melt and moderately heavy rain from Mar. 26-28. Precipitation in the upper Grand Basin averaged 1.39 inches and in the Saginaw Basin .9 inch on the 27th and 28th. Precipitation in the lower Grand Basin averaged .8 inch on the 26th and 27th. Considerable amount of water was stored in the ground surface during December 1949 and January 1950 when above normal precipitation occurred and was an important factor in the floods that developed. This water was stored in the ground by deep frost penetration and considerable amounts were released during periods of mild weather during the latter part of the month.

Most of the flood damage occurred in the lower Grand Basin and was confined to dwellings, walks, drives and lawns in the lowlands of the suburbs north of Grand Rapids, Mich. About 38 dwellings in the area were flooded and some of the occupants were moved to higher ground.

ATLANTIC SLOPE DRAINAGE.--Local flooding occurred along Perkiomen Creek at Graters Ford, Pa., on the 23d due to heavy rains on the 22d averaging 1.4 inches over the basin. The crest at Graters Ford exceeded bank-full stage by nearly 2.5 feet.

Flooding occurred along the main stem of the Susquehanna River from Oneonta, N.Y., to Sunbury, Pa., a distance of nearly 300 miles during the last few days of the month. Minor flooding occurred also along the northern tributaries in New York. This flooding was due almost entirely to rapid snow melt caused by unseasonably high temperatures on the 28th and 29th. The snow cover prior to this thawing period averaged from 5 to 23 inches with the water content over the Susquehanna Basin estimated between 3 and 6 inches. The runoff from this snow melt averaged about 2.5 inches. The crests at Towanda, Wilkes-Barre, Sunbury and Harrisburg, Pa., were the 5th highest since the floods of March 1936. Damages from this flood were relatively light.

Light flooding occurred in the Monocacy River at Frederick, Md., during the evening of the 23d due to heavy precipitation (1.75 inches) over the basin during the night of the 22-23d. Precipitation was mostly in the form of rain except in the northern portion where light to moderate snow occurred. No damage resulted from the slight overflow.

Minor flooding occurred in the lower portions of the Cape Fear and Roanoke Rivers during the latter part of the month due to rainfall between the 20th and 24th averaging from 1 to 1.5 inches during the period. Very little damage if any resulted from the overflows.

EAST GULF OF MEXICO DRAINAGE.--Light flooding occurred on the Apalachicola River at Blountstown, Fla., on two different occasions during March. The first overflow was due to light to moderate rain on the 5th and 7th and the second to light to moderate rain on the 16th. No damage was resulted from the light overflow.

The heavy rains over the Etowah, Oostanaula, upper Coosa, upper Tombigbee and Warrior River Basins from the 12th to the 14th caused rapid rises with moderate to heavy flooding along all streams except the Etowah where no overflows occurred. The rainfall was exceptionally heavy in places, averaging nearly 7 inches in the Columbus-Aberdeen, Miss., area on the Tombigbee and on the extreme upper reaches of the Warrior. A rise of 31.5 feet occurred on the Warrior at Tuscaloosa, Ala., during the night of the 12-13th. The Oostanaula River at Resaca, Ga., reached a crest of 30.1 feet on the 15th, 2.9 feet below the highest stage of record (33.0 feet in 1921). Approximately 200 homes were evacuated by the Red Cross in a residential area of Columbus, Miss.

Rainfall during the first 8 days of March maintained above flood stages along the Pearl River from above Jackson, Miss., to the coast until the 10th. Heavy rains (2 inches) over the headwater reaches of the Pearl on the 13th produced sharp rises over the upper and intermediate reaches and prolonged flooding from above Jackson, Miss., to the coast from the 14th to the end of the month. Damages continued on the lower reach of the Pearl River due to cessation of the logging and pulpwood harvest and inundation of winter grazing areas for livestock.

UPPER MISSISSIPPI BASIN.--The Pecatonica River overflowed twice during the month at Freeport, Ill. The first overflow, between the 6th and 13th, was due mostly to snow melt and some ice action. The second, from the 26th to the 30th, was due to snow melt and precipitation averaging 1.25 inches.

The Rock River at Moline, Ill., rose above flood stage three times during the month due to snow and ice melt, ice gorge effects and rainfall.

Minor flooding occurred on the Root, Zumbro and Whitewater Rivers in Minnesota and on the Kickapoo River in Wisconsin between the 7th and the 12th. These minor overflows were due to rapid snow melt caused by a period of warm weather lasting about 5 days. The snow cover on the ground prior to this warm period ranged from 5 to 8 inches deep. Floods of greater intensity developed in the same tributaries on the 26th, 27th, and 28th due to a combination of snow melt and rainfall. Excessive rains of short duration in both the Root and Zumbro Rivers produced a maximum flood averaging 2 to 5 feet above flood stage. The crest of 40 feet on the Zumbro River at Theilman, Minn., was a record high for at least the past 15 years. The flow of the Root River was comparable to that of the spring of 1917 and was somewhat higher than that of June 25 to 29, 1942. Considerable damage occurred along the Root River with the greatest damage occurring to highways and to the railroad track in the valley. Only minor damage occurred along the other streams.

There were three periods of overflow in the streams of the Des Moines River Basin during the month. The first of these occurred on the 1st of the month along the Des Moines River from Tracy to Ottumwa, Iowa, the second along the Cedar River from Charles City to below Waterloo, Iowa, on the 8-9th and the third at Charles City, Iowa, on the 26-28th. The flood along the lower Des Moines River resulted from a brief warm period attended by light to moderate precipitation that caused break-up of ice at the close of February. The ice did not break up above Des Moines and the overflow was confined to low agricultural ground for brief periods. Break-up of ice on the tributary streams emptying into the Des Moines between Des Moines and Tracy, Iowa, began on Feb. 28. The Middle River near Indianola, Iowa, rose from a stage of 5.3 feet at 7 a.m. on Feb. 27 to 16.8 feet at 3 p.m. on Feb. 28. The overflow along the Cedar River at Waterloo, Iowa, on the 8-9th and at Charles City, Iowa, was also due to break-up of ice in the areas affected. Seventy-five families were forced from their homes by the high water in the Charles City area.

The flooding along the Illinois River was due to snow melt caused by unseasonably mild weather on the 5th. The overflow on the Meramec River at Pacific, Mo., was due to precipitation averaging .9 inch during the 48 hours ending in the morning of the 20th.

A slow rise resulted in the upper Mississippi from the high water in the tributaries producing minor overflows in the Mississippi between Keokuk, Iowa, and Hannibal, Mo., during the period from the 10th to the 17th.

MISSOURI BASIN.--The Floyd River exceeded flood stage at James, Iowa, twice during the month. Both overflows were caused by snow melt. The snow cover on Mar. 1 averaged only 1 to 2 inches on the level. However, most ditches were full of ice and snow and large drifts lay on the northern slopes. The mild temperatures from the 3d to the 6th caused the snow to melt and by the 7th most of the snow was gone. The ice broke up during this period. A blizzard struck northwestern Iowa on the afternoon of the 7th while the Floyd was still above flood stage. During the period from the 7th to the 10th, 4 to 8 inches of new snow occurred over northwestern Iowa. Very little melting occurred during the second and third weeks as the temperatures remained below normal. Mild weather during the last week caused the snow to melt forcing the Floyd to go above bank-full stage from the 25th to the 27th. No damage resulted from the flooding.

The ice broke up on the Big Sioux River between the 18th and the 27th from above Akron, Iowa, to the mouth of the river with light flooding at Akron. Some flooding occurred along the Cheyenne, Bad and White Rivers in South Dakota due to snow melt between the 20th and 25th.

Local minor flooding occurred on the Platte River at Ashland, Nebr., from the 6th to the 8th due to ice jams.

Local floods occurred at scattered points in the Elkhorn River Valley in Nebraska from ice gorges which developed after the break-up of heavy ice in the streams. Continuous very cold weather through the late winter months caused very heavy ice formation in the Elkhorn ranging from 24 to 30 inches in thickness. Maximum temperatures ranged from 55 to 65 degrees over northeastern Nebraska on the 4th, 5th and 6th, causing the snow cover of 2 to 3 inches to melt. Ice in the streams started to break up on the 5th and 6th, followed by the development of ice gorges in the Elkhorn and North Fork Rivers.

Flood stage was reached briefly on the upper Republican River at Cambridge, Nebr., during the evening of the 14th due to a local ice gorge. Minor flooding occurred in the upper Big Blue River at Ulysses, Nebr., on the 1st and 2d due to snow melt and rain.

The ice broke up along the main stem of the Missouri from the 25th to the end of the month from Omaha, Nebr., to about 30 miles north of Chamberlain, S. Dak. The break-up was orderly with only short duration of gorging and no serious flooding. Most of the high water in the Missouri River during this period was caused by ice gorges from around the mouth of the Niobrara River to above Chamberlain. Flood stage was exceeded at Nebraska City, Nebr., and Geddes, S. Dak., and was approached rather closely at Chamberlain and Yankton, S. Dak.

OHIO BASIN.--Mostly light overflows occurred along the Allegheny River from Olean, N.Y., to Natrona, Pa., during the last few days of the month due to rain (.5 to .75 inch) and snow melt. At Olean, N.Y., flood stage was exceeded by 4 feet and at other locations flood stage was exceeded by 1 to 3 feet. Flooding was localized, however, in low bank reaches and damages were slight. Navigation along the Allegheny and Monongahela Rivers was disrupted several times during the month.

The lower Wabash and White Rivers that were in flood at the close of February receded to within their banks by the 10th of March. It was the first time since Jan. 4, a period of 61 days, that the Wabash had been below flood stage at Mount Carmel, Ill. Heavy rains from the 26th to the 28th caused the lower portions of the streams in the Wabash and White Basins to go above flood stage again before the month ended.

Heavy rains over the Tennessee River Basin on the 12th and 13th produced high flows and near flood stages on several tributaries of the Tennessee River over the western half of the basin, particularly the Elk and Duck Rivers. At main river dams, discharges were increased sufficiently to produce flood stages at several points over the lower half of the river for the third time since Jan. 1. The rainfall averaged 3.4 inches over the drainage area below Chattanooga, Tenn., and 2.8 inches above that point. Some local heavy amounts ranging up to 5 inches were recorded in northern Alabama.

The main stem of the Ohio River that was above flood stage on Feb. 28 receded to below flood stage at Cairo, Ill., on the 7th, the first time since Jan. 5, a total of 62 days. The Ohio continued falling at a moderate rate until the morning of the 12th. Heavy rains occurred in the Tennessee and Cumberland Valleys on the 11th and 12th, causing the lower Ohio again to rise above flood stage at and below Brookport, Ill.

WHITE AND RED BASINS.--The White and Black Rivers in the White Basin continued high throughout March. All crests during the month were due to secondary rises on streams already swollen from high water of the previous two months. The heavy rains (2 inches) during the period from the 11th through the 13th produced these secondary rises. Damage from the high water was slight.

The high water in the Red Basin on the Ouachita and Sulphur Rivers was due to the heavy rains on the 11th and 12th, averaging 3 inches over the Ouachita Basin and slightly less over the latter. Only minor flooding occurred and damages were slight.

LOWER MISSISSIPPI BASIN.--The St. Francis River fell below flood stage along its entire course between the 1st and the 16th. It had been above flood stage at St. Francis, Ark., since Dec. 29th, a total of 70 days, before receding

within its banks on Mar. 8. The St. Francis continued falling generally until the 26th before heavy rains on the 27th and 28th caused it to rise again to near bank-full level.

Heavy rain between the 11th and 13th caused the Coldwater River to exceed flood stage at Sarah, Miss., and the Yazoo again at Greenwood, Miss. The Tallahatchie was already in flood, having gone out of its banks on Jan. 10 at Swan Lake, Miss. The Yazoo was also in flood at Yazoo City, Miss. This rain, however, caused the Tallahatchie to rise to its highest crest (31.3 feet) at Swan Lake during the year. The rainfall averaged 4.5 to 5 inches on the Tallahatchie and Yalobusha Rivers and about 2 inches over the Yazoo. Considerable land was inundated along these streams and numerous families were moved from their homes. Crop damage was not heavy since the principal crop, cotton, had not been seeded.

The Mississippi River fell below flood stage at Caruthersville, Mo., and Helena, Ark., early in the month. By the end of the month the Mississippi was within its banks along its entire course. The flood in the lower portion compared favorably with the flood of 1929 when the Pointe-a-la-Hache (Bohemia) Outlet, some 50 miles below New Orleans, was in full operation. This year that outlet was discharging only a small amount of water and had little effect on the stage of New Orleans, La. The Bonnet Carre' Spillway, 33 miles upstream from New Orleans, was placed in operation on Feb. 10 when a stage of 19.98 feet was reached at New Orleans, La. This was the third time since the spillway was completed in 1935 that it had been put in operation, the first being in 1937 when it remained open for 37 days and the second in 1945 when it was open 58 days. The spillway this year was open for 37 days, being closed on the 18th. During the period that it was open the stage at New Orleans was maintained near 19.5 feet.

WEST GULF OF MEXICO DRAINAGE.--Moderate rises occurred in the lower Sabine, Calcasieu and Mermentau Basins from the heavy rains on the 4th but no additional overflows resulted than what was already in progress along the lower and middle reaches of the Sabine. Scattered rains between the 11th and 12th (1.5 inches) caused minor flooding in the upper Sabine. The only loss reported was the temporary loss of pasturage in the lowlands.

The flooding in the Neches River at Evadale, Tex., that began Feb. 14 was prolonged by the heavy rains between the 1st and the 4th of March. These same rains prolonged the flooding along the Trinity River at Liberty, Tex., until the 8th. There was considerable loss of income and wages through the suspension of activities in the South Liberty oil field.

PUGET SOUND AND WASHINGTON COAST DRAINAGE.--Heavy rain (2 inches) over the Chehalis, Green and Snohomish River Basins in Washington during the 24-hour period ending on the 4th caused moderate to heavy rises in these streams. The Chehalis River crested .3 foot below flood stage at Grand Mound but the Green River exceeded bank-full stage at Auburn by .8 foot. It was the highest water noted in the lower Green Valley from Kent to Renton Junction since the December 1946 flood. The Snohomish River at Snohomish exceeded flood stage by 3.8 feet and its two principal tributaries, the Skykomish and the Snoqualmie exceeded flood stage by 4.5 to 4.8 feet. A flash flood occurred on the Stillaquamish River at Arlington for a brief period during the early morning hours of the 4th. Actual damage from flooding was slight although much lowland farm acreage was inundated and several roads were closed.

Minor local flooding occurred in the Columbia Basin along the Willamette, Santiam and Tualatin Rivers for a brief period during March. This freshet, like earlier ones this past winter, was due to precipitation and snow melt. The only damage resulting from the minor overflows was that due to erosion.

FLOOD STAGE REPORT

(All dates in March unless otherwise specified)

Table 5

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			Ft.	
ST. LAWRENCE DRAINAGE					
Lake Michigan					
Red Cedar:					
Williamston, Mich.	7	27	29	8.8	28
East Lansing, Mich.	8	28	30	9.9	28
Grand:					
Lansing, Mich.	11	28	30	12.5	28
Lowell, Mich.	15	29	31	15.6	30
Lake Huron					
Shiawassee: Owosso, Mich.	7	28	28	7.3	28
Cass: Vassar, Mich.	14	28	29	16.6	28
Pine: Alma, Mich.	9	27	29	11.2	28
Chippewa: Mt. Pleasant, Mich.	13	28	28	13.4	28
Tittabawassee: Midland, Mich.	18	27	29	21.6	28
Saginaw: Saginaw, Mich.	19	29	31	19.6	30
Lake Erie					
St. Marys: Decatur, Ind.	13	28	30	16.8	29
St. Joseph: Montpelier, Ohio	10	7	12	12.3	10
		23	31	14.5	28
Maumee:					
Fort Wayne, Ind.	15	28	Apr. 1	17.4	29-30
Defiance, Ohio	10	29	29	10.9	29
ATLANTIC SLOPE DRAINAGE					
Perkiomen Creek: Graters Ford, Pa.	8	23	23	11.1	23
Tioughnioga: Whitney Point, N.Y.	12	28	30	13.7	29
Chenango:					
Sherburne, N.Y.	8	28	31	9.4	28
Greene, N.Y.	8	29	31	11.4	30
Binghamton, N.Y.	16	29	31	18.2	30
Chemung:					
Corning, N.Y.	16	29	29	17.9	29
Elmira, N.Y.	12	29	29	16.1	29
Chemung, N.Y.	12	28	30	19.1	29
West Branch: Lewisburg, Pa.	18	29	30	18.0	30
Susquehanna:					
Oneonta, N.Y.	12	28	31	17.4	29
Unadilla, N.Y.	11	28	29	11.5	29
Bainbridge, N.Y.	13	29	31	17.0	29
Binghamton, N.Y.	14	29	30	14.3	30
Vestal, N.Y.	14	29	31	20.9	30
Towanda, Pa.	16	28	30	21.2	29
Wilkes-Barre, Pa.	22	29	31	27.0	30
Danville, Pa.	20	29	31	21.9	30
Sunbury, Pa.	16	30	30	16.0	30
Monocacy: Frederick, Md.	15	23	23	15.5	23
Roanoke: Williamston, N.C.	10	28	30	10.2	29
Cape Fear: Elizabethtown, N.C.	20	24	25	22.5	24
EAST GULF OF MEXICO DRAINAGE					
Apalachicola: Blountstown, Fla.	15	9	12	15.5	10
		17	22	16.3	19
Oostanaula:					
Resaca, Ga.	22	13	18	27.1	14
				30.1	15
Rome, Ga.	20	13	20	26.5	14
				25.6	16
Coosa: Gadsden, Ala.	20	13	22	25.5	15
Black Warrior: Tuscaloosa Lock and Dam, Ala.	47	13	18	62.4	15
Tombigbee:					
Aberdeen, Miss.	34	14	18	39.6	16
Columbus, Miss.	29	14	19	34.8	16
Gainesville, Ala.	36	Feb. 14	Feb. 28	47.6	Feb. 23
		15	28	47.5	22
Lock No.4, Demopolis, Ala.	39	Feb. 6	3	50.2	Feb. 20
		15	†	57.7	23
Lock No. 3	33	Feb. 5	7	51.8	Feb. 20
		14	†	57.0	24,25
Lock No. 2	46	Feb. 11	4	53.0	Feb. 26
		17	†	58.1	25,26
Lock No. 1	31	Feb. 10	8	35.8	Feb.24-28
		17	†	38.7	29,30
Pearl:					
Jackson, Miss.	20	Feb. 3	11	33.7	Feb. 21
		13	†	26.0	22
Monticello, Miss.	15	Feb.10	9	23.8	Feb. 26
		15	19	16.8	16
		21	22	15.0	21
Columbia, Miss.	17	Feb. 13	9	23.0	Feb. 28
		17	17	17.2	17
Bogalusa, La.	15	Jan. 7	†	20.4	Jan. 16
				19.6	Feb.15-16
					Feb.19-20
				22.0	6
Pearl River, La.	12	Jan. 10	†	16.3	Jan. 16
				16.5	Feb. 17
				16.2	7
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Zumbro: Thielman, Minn.	35	7	11	40.8	8
		26	28	40.0	27
Whitewater: Beaver, Minn.	7	7	8	9.5	--
		26	26	10.0	26
La Crosse: West Salem, Wis.	7	7	8	8.3	7
		27	27	7.4	27
Root:					
Houston, Minn.	15	7	11	16.6	--
		26	28	16.6	27
Hokah, Minn.	45	7	12	50.0	9
		25	29	48.9	27
Kickapoo: Stueben, Wis.	9	7	12	10.9	9
		26	29	10.1	27
Pecatonica: Freeport, Ill.	12	7	13	13.8	11
		26	30	12.9	27-28
Rock: Moline, Ill.	10	6	13	11.7	9
		16	17	10.1	16
		28	31	10.6	31
Cedar: Waterloo, Iowa	15	8	9	15.9	8
Middle: Indianola, Iowa	15.5	Feb. 28	1	16.8	Feb. 28
Des Moines:					
Tracy, Iowa	14	1	1	16.0	1
Eddyville, Iowa	15	1	2	16.9	1
Ottumwa, Iowa	9	1	2	9.8	1
Illinois:					
Morris, Ill.	13	6	8	14.4	7
Peru, Ill.	17	6	11	19.4	8
Peoria, Ill.	18	9	12	18.5	10
Havana, Ill.	14	Jan. 4	24	14.2	Jan. 5
				16.7	Jan. 21
				17.3	Jan. 30
				15.2	Feb. 23
				14.7	3
				15.9	12
				15.0	21
		30	†	----	--
Beardstown, Ill.	14	Jan. 2	28	14.7	Jan. 6
				18.7	Jan. 21
				19.1	Jan. 30
				16.4	Feb. 24
				15.8	14
Meramec: Pacific, Mo.	11	21	22	12.8	22
Mississippi:					
Keokuk, Iowa	12	9	11	12.3	9
Gregory Landing, Mo.	12	9	11	12.8	9
Hannibal, Mo.	13	9	17	14.2	12
		31	†	13.3	31
Missouri Basin					
Big Sioux: Akron, Iowa	12	26	30	13.5	28
Floyd: James, Iowa	16	5	7	16.8	6
		25	27	16.5	27
North Branch: Pierce, Nebr.	12	24	26	13.0	26

FLOOD STAGE REPORT

(All dates in March unless otherwise specified)

Table 5-Continued

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			Ft.	
MISSISSIPPI SYSTEM (Cont'd.)					
Missouri Basin (Cont'd.)					
Elkhorn:					
Norfolk, Nebr.	10	17	18	10.4	17
West Point, Nebr.	12	6	23	13.9	7
Republican: Cambridge, Nebr.	6	14	14	6.0	14
Missouri: Geddes, S. Dak.	12	27	27	15.5	27
Ohio Basin					
Allegheny:					
Olean, N.Y.	10	28	31	14.1	29
Warren, Pa.	14	29	29	14.4	29
Lock No.7, Kittanning, Pa. (Lower gage)	24	29	30	26.6	29
Lock No.5, Schenley, Pa. (Upper gage)	21	29	30	21.8	29
Lock No.4, Natrona, Pa. (Lower gage)	24	29	30	25.3	29
Green: Lock No.2, Rumsey, Ky.	34	Feb. 1	6	45.7	Feb. 14
West Fork:					
Muncie, Ind.	--	--	--	6.5	28
Anderson, Ind.	10	28	29	12.9	28
Spencer, Ind.	--	--	--	17.5	29
Elliston, Ind.	18	28	†	23.8	30
Newberry, Ind.	--	--	--	18.0	31
Edwardsport, Ind.	12	Jan. 4	7	26.3	Jan. 8
				15.4	1,3
		13	†	19.9	31
East Fork:					
Seymour, Ind.	14	28	30	15.9	28
Bedford, Ind.	--	--	--	19.8	31
White: Petersburg, Ind.	16	Jan. 5	3	26.4	Feb. 11
		28	†	21.0	31
Wabash:					
Bluffton, Ind.	10	29	30	11.0	29
Wabash, Ind.	12	28	31	16.8	28
La Fayette, Ind.	11	2	2	11.9	2
		9	9	11.0	9
		13	14	11.7	13
		18	20	13.8	19
		23	24	12.3	23
		28	†	18.6	29
Covington, Ind.	16	20	21	17.1	20
		24	24	16.0	24
		28	†	21.9	31
Montezuma, Ind.	--	--	--	19.9	31
Terre Haute, Ind.	14	21	23	14.2	22
		28	†	16.2	30-31
Hutsonville, Ill.	--	--	--	19.3	31
Riverton, Ind.	--	--	--	16.9	31
Vincennes, Ind.	16	Feb. 13	3	23.0	Feb. 23
		29	†	16.2	30-31
Mount Carmel, Ill.	17	Jan. 4	5	27.1	Jan. 13
				25.5	Feb.22,23
		29	31	19.3	31
Grayville, Ill.	--	--	--	21.9	1
New Harmony, Ind.	15	1	5	19.0	1
South Chickamauga Creek:					
Chickamauga, Tenn.	10	12	16	16.7	14
Elk: Fayetteville, Tenn.	18	13	15	19.9	14
Tennessee:					
Florence, Ala.	18	13	18	21.9	15
Savannah, Tenn.	80	16	18	81.5	18
Gilbertsville, Ky.	34	Jan. 5	8	56.2	Feb. 13
Ohio:					
Dam No.48, near Henderson, Ky.	38	Jan. 7	1	49.8	Jan. 19
				48.5	Feb. 9
Mount Vernon, Ind.	35	Jan. 7	3	49.8	Jan. 18
				47.5	Feb. 11
Dam No.49, Uniontown, Ky.	37	Jan. 7	5	54.0	Jan. 19
				50.5	Feb. 11
Shawneetown, Ill.	33	Jan. 6	6	55.3	Jan. 19
				52.0	Feb. 13

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			Ft.	
MISSISSIPPI SYSTEM (Cont'd.)					
Ohio Basin (Cont'd.)					
Ohio (Cont'd.):					
Dam No.50, Fords Ferry, Ky.	34	Jan. 5	7	58.5	Jan. 20
				55.7	Feb. 13
Dam No.52, Brookport, Ill.	37	19	22	38.4	21
Dam No.53, near Mound City, Ill.	42	18	22	43.9	21
Cairo, Ill.	40	17	23	42.3	21
White Basin					
Black: Black Rock, Ark.	14	Jan. 3	9	26.9	Jan. 5
				24.8	Feb. 14
		14	18	14.2	17
White:					
Augusta, Ark.	32	Jan. 7	1	35.7	Jan. 19
				34.5	Feb. 18
Georgetown, Ark.	21	Jan.5	7	29.1	Jan. 19
				27.2	Feb. 19
Des Arc, Ark.	24	Jan. 6	7	32.9	Jan. 20
				30.6	Feb. 20
Clarendon, Ark.	26	Jan. 5	†	33.6	Jan. 22
				32.3	Feb. 22
St. Charles, Ark.	25	Jan. 7	†	33.0	Jan. 27
				33.2	Feb. 25
Red Basin					
Ouachita:					
Arkadelphia, Ark.	17	13	13	18.4	13
Camden, Ark.	26	14	21	32.4	17
Monroe, La.	40	--	†	47.3	1-2
Black: Jonesville, La.	50	Feb. 4	†	55.9	6
Sulphur:					
Naples, Tex.	22	14	20	24.7	17
McCartney Bridge, Tex.	22	--	--	23.0	23
Lower Mississippi Basin					
St. Francis:					
Fisk, Mo.	20	Feb. 13	1	23.8	Feb.18-20
St. Francis, Ark.	18	Dec. 29	8	18.5	Dec. 31
				23.5	Jan. 14
				21.9	Jan.28,29
				21.8	Feb. 24
Parkin, Ark.	28	Jan. 13	19	32.8	Jan. 27
				32.7	Feb. 1-4
					Feb.24-25
Madison, Ark.	32	Jan. 17	16	35.9	Feb. 2
				35.7	Feb. 23-Mar. 1
Coldwater: Sarah, Miss.	18	12	16	21.7	13
		27	28	19.2	27
Tallahatchie: Swan Lake, Miss.	26	Jan. 10	†	31.0	Jan. 19
				30.3	Feb. 18
				31.3	17
Yazoo:					
Greenwood, Miss.	35	Feb. 18	3	36.8	Feb. 23
		16	†	38.7	21
Yazoo City, Miss.	29	Jan. 26	†	36.3	14
Mississippi:					
Caruthersville, Mo.	32	Jan. 8	7	41.7	Jan. 18
				41.3	Feb. 17
Memphis, Tenn.	34	Jan. 15	7	39.6	Jan. 27
				40.1	Feb. 2
				40.5	Feb. 22
Helena, Ark.	44	Jan. 17	9	48.7	Jan. 27
				49.5	Feb. 3
				50.3	Feb.22-23
Greenville, Miss.	39	Jan. 30	6	41.2	Feb. 24
Vicksburg, Miss.	43	Feb. 10	10	45.0	2
Natchez, Miss.	48	Jan. 30	17	53.4	4
Red River Landing, La.	45	Jan. 25	26	53.7	4-5
Baton Rouge, La.	35	Jan. 23	30	43.5	4
Donaldsonville, La.	28	Jan. 23	26	33.6	4-5
Reserve, La.	22	Jan. 24	24	25.6	Feb. 10
New Orleans, La.	17	Jan. 24	24	20.0	Feb. 10

FLOOD STAGE REPORT

(All dates in March unless otherwise specified)

Table 5-Continued

River and station	Flood stage	Above flood stages -dates[1]		Crest[1]	
		From—	To—	Stage	Date[2]
	Ft.			*Ft.*	
MISSISSIPPI SYSTEM (Cont'd.)					
Atchafalaya Basin					
Atchafalaya:					
Simmesport, La.	41	Jan. 29	25	48.5	5
Melville, La.	37	Jan. 23	†	44.8	5
Atchafalaya, La.	25	Jan. 12	†	30.4‡	5
Morgan City, La.	6**	Jan. 28	†	6.2	Jan. 29
				7.4	Feb.12,13
				7.6	Feb. 22
				8.2	7-12
				8.1	15
				8.0	27
WEST GULF OF MEXICO DRAINAGE					
Sabine:					
Mineola, Tex.	14	17	19	16.5	18
Logansport, La.	25	Feb. 14	7	32.7	Feb. 25
Milam, Tex.	35	Feb. 15	11	40.4	Feb. 24
				41.9	4
Bon Wier, Tex.	17	Feb. 12	18	22.1	Feb. 16
Neches: Evadale, Tex.	16	Feb. 14	13	17.6	Feb. 22
					Mar. 4
Trinity: Liberty, Tex.	24	Feb. 11	8	27.8	Feb. 26
PACIFIC SLOPE DRAINIAGE					
Santiam: Jefferson, Oreg.	13	18	19	15.7	17
Tualatin: Dilley, Oreg.	12	5	5	12.0	5
Willamette: Harrisburg, Oreg.	12	18	20	13.4	18
PUGET SOUND					
Green: Auburn, Wash.	63	4	4	63.8	4
Snoqualmie: Tolt, Wash.	51.5	4	6	56.3	4
Snohomish: Snohomish, Wash.	23.6	4	6	27.4	4
Stillaquamish: Arlington, Wash.	16	4	4	16.2	4

* Provisional.
† Continued at end of month.
‡ Flood stage or higher reached intermittently from Jan. 28 to Feb. 4.
** Stages influenced by wind and tide.

RADIOSONDE DATA

Average monthly values

Table 20 — MARCH 1950

Standard pressure surface (mb.)	ALBANY, N. Y. (1004 MB.)				ALBUQUERQUE, N. MEX. (835 MB.)				ATLANTA, GA. (983 MB.)				BIG SPRING, TEX. (924 MB.)				BISMARCK, N. DAK. (957 MB.)				BOISE, IDAHO (915 MB.)				BROWNSVILLE, TEX. (1014 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	86	- 3.2	74	31	1,620	9.8	23	31	300	9.6	64	31	784	13.6	28	30	505	- 6.7	81	31	868	4.6	71	31	6	18.9	84
1,000--	30	113			31	86			31	154			31	105			30	153			31	140			31	124	18.9	80
950----	30	522	- 4.4	66	31	538			31	582	9.0	57	31	545			30	560			31	568			31	569	17.8	73
900----	30	943	- 6.3	65	31	997			31	1,027	7.0	58	31	1,004	14.3	27	30	980	- 7.2	71	31	1,006	4.9	63	31	1,028	17.1	57
850----	30	1,389	- 7.7	63	31	1,469			31	1,495	5.1	53	31	1,484	12.3	28	30	1,424	- 8.6	64	31	1,470	2.0	61	31	1,515	15.9	49
800----	30	1,858	- 9.3	58	31	1,974	8.9	23	31	1,988	3.3	52	31	1,990	10.2	25	30	1,893	- 9.1	59	31	1,956	- 1.5	64	31	2,028	13.8	43
750----	30	2,362	-10.7	53	31	2,509	5.1	26	31	2,515	1.5	47	31	2,527	7.3	24	30	2,399	-10.8	56	31	2,471	- 5.0	68	31	2,577	11.4	36
700----	30	2,886	-12.3	50	31	3,063	0.6	28	31	3,064	- 0.7	44	31	3,087	3.1	24	30	2,919	-13.1	54	31	3,006	- 8.6	68	31	3,143	7.7	35
650----	30	3,456	-14.7	50	31	3,659	- 4.1	32	31	3,656	- 3.7	40	31	3,686	- 1.1	22	30	3,494	-15.6	51	31	3,584	-12.2	65	31	3,752	3.2	35
600----	30	4,052	-17.9	47	31	4,278	- 8.7	34	31	4,281	- 7.6	40	31	4,316	- 5.5	25	30	4,082	-18.7	53	30	4,184	-15.8	65	29	4,391	- 1.5	37
550----	29	4,702	-21.9	45	31	4,953	-13.1	32	30	4,954	-12.2	35	30	4,995	-10.4	27	29	4,732	-22.3	52	30	4,840	-20.0	60	28	5,082	- 6.2	
500----	29	5,393	-26.1		31	5,665	-18.0		30	5,672	-16.8		30	5,719	-15.5	30	29	5,417	-26.8	54	30	5,534	-24.7	57	27	5,817	-11.1	
450----	29	6,150	-30.9		31	6,446	-23.4		30	6,458	-21.9		30	6,506	-21.5	35	28	6,174	-32.1	56	29	6,300	-29.4	51	27	6,621	-16.7	
400----	28	6,974	-36.6		31	7,296	-29.7	34	30	7,312	-28.1		29	7,362	-28.1	37	28	6,990	-38.1	58	28	7,119	-35.4	48	27	7,493	-23.4	
350----	27	7,886	-43.0		31	8,233	-36.7		30	8,257	-34.8		29	8,306	-35.1		28	7,897	-44.7		27	8,028	-42.0		27	8,454	-30.9	
300----	26	8,904	-50.0		31	9,283	-44.4		30	9,316	-42.5		28	9,363	-43.1		27	8,905	-51.7		26	9,060	-48.9		27	9,528	-39.3	
250----	23	10,089	-54.0		30	10,485	-52.3		29	10,530	-50.7		27	10,571	-51.3		24	10,057	-56.8		24	10,251	-53.8		26	10,751	-48.4	
200----	21	11,517	-54.1		28	11,904	-57.6		29	11,959	-57.1		27	11,998	-56.8		23	11,484	-55.0		21	11,683	-56.7		24	12,190	-56.6	
175----	19	12,369	-53.0		28	12,749	-56.4		29	12,803	-56.9		27	12,843	-56.8		20	12,343	-54.0		21	12,532	-54.9		24	13,031	-59.3	
150----	17	13,365	-54.3		26	13,735	-57.5		29	13,776	-58.6		27	13,815	-59.1		18	13,335	-53.7		18	13,525	-53.8		23	13,987	-62.5	
125----	16	14,524	-55.7		26	14,880	-59.9		28	14,911	-62.1		26	14,953	-62.3		15	14,504	-54.4		14	14,690	-55.6		23	15,100	-66.4	
100----	10	15,941	-57.3		25	16,266	-63.8		27	16,279	-65.3		23	16,327	-65.6		8	15,963	-55.2		8	16,165	-58.0		21	16,440	-70.3	
80-----	5	17,393	-57.7		15	17,636	-65.1		22	17,634	-66.6		10	17,697	-68.6						6	17,551	-59.8		10	17,761	-71.7	
60-----									11	19,398	-65.3																	

Standard pressure surface (mb.)	BUFFALO, N. Y. (988 MB.)				CAMAGUEY, CUBA (1005 MB.)				CARIBOU, MAINE (986 MB.)				CHARLESTON, S. C. (1016 MB.)				CIUDAD VICTORIA, MEX. (974 MB.)				COLUMBIA, MO. (987 MB.)				DODGE CITY, KANS. (923 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	221	- 1.8	73	28	122	21.2	81	31	191	- 7.9	68	31	18	11.4	78	28	335	22.9	58	31	239	3.9	61	31	792	3.9	49
1,000--	30	118			28	163	21.4	82	31	80			31	150	12.9	66	28	107			31	128			31	125		
950----	30	531	- 2.7	66	28	609	19.9	75	31	484	- 7.3	59	31	585	12.2	59	28	556	21.7	57	31	550	3.1	57	31	552		
900----	30	954	- 5.0	64	28	1,073	17.6	68	31	900	- 9.1	58	31	1,034	9.9	57	28	1,021	18.4	61	31	982	0.7	59	31	994	5.0	45
850----	30	1,402	- 7.2	66	28	1,558	14.7	66	31	1,341	-11.0	57	31	1,507	7.6	51	28	1,509	15.3	67	31	1,440	- 0.6	54	31	1,459	3.5	42
800----	30	1,873	- 8.9	62	28	2,070	11.4	64	31	1,805	-12.1	56	31	2,005	5.8	43	28	2,021	12.6	68	31	1,923	- 2.8	54	31	1,948	1.5	38
750----	30	2,378	-10.5	60	28	2,608	9.1	49	31	2,304	-12.9	55	31	2,539	3.0	39	28	2,569	10.0	61	31	2,440	- 4.3	53	31	2,469	- 0.9	35
700----	30	2,901	-12.3	59	28	3,178	7.5		31	2,822	-15.0	54	31	3,087	0.7	36	28	3,132	7.4	53	31	2,974	- 6.6	48	31	3,013	- 4.0	35
650----	30	3,474	-14.9	55	28	3,790	4.8		31	3,386	-17.9	52	31	3,683	- 2.6	36	27	3,742	3.3	49	31	3,559	- 8.9	45	31	3,599	- 7.6	39
600----	30	4,067	-18.1	50	28	4,434	1.3		31	3,975	-19.8	45	31	4,309	- 6.1	33	26	4,383	- 1.4	44	31	4,166	-12.2	44	31	4,212	-11.9	41
550----	30	4,721	-21.6	45	28	5,133	- 3.1		31	4,616	-24.0	45	31	4,990	-10.3	33	24	5,073	- 5.9		31	4,830	-16.0	42	31	4,873	-16.7	44
500----	30	5,410	-25.6	42	28	5,877	- 8.4		31	5,304	-27.8	44	31	5,713	-15.0	33	24	5,811	-10.6		31	5,538	-20.7	42	31	5,581	-21.7	42
450----	29	6,176	-30.2	40	27	6,691	-14.2		31	6,053	-33.1	42	31	6,506	-20.6	34	23	6,617	-16.4		31	6,314	-26.2	40	31	6,350	-27.3	42
400----	28	7,003	-36.0	39	27	7,569	-20.7		30	6,879	-38.1		31	7,363	-26.7		23	7,489	-23.2		31	7,150	-32.2	39	31	7,186	-33.4	41
350----	27	7,932	-41.8		27	8,542	-28.4		29	7,788	-42.7		31	8,313	-33.5	34	23	8,451	-30.8		31	8,079	-39.2		31	8,112	-39.8	
300----	27	8,961	-48.2		27	9,628	-37.1		29	8,818	-47.2		30	9,378	-41.0		22	9,527	-39.2		31	9,118	-46.6		31	9,148	-46.8	
250----	25	10,155	-51.8		27	10,865	-46.0		23	10,023	-50.3		28	10,593	-49.6		21	10,750	-49.0		31	10,311	-52.5		31	10,339	-52.7	
200----	23	11,597	-52.7		27	12,316	-55.8		23	11,475	-50.9		27	12,026	-55.7		18	12,183	-59.0		31	11,741	-54.7		30	11,763	-55.6	
175----	22	12,451	-51.0		27	13,157	-60.4		23	12,345	-50.2		24	12,869	-56.8		17	13,014	-62.2		29	12,605	-53.0		28	12,622	-54.8	
150----	17	13,442	-52.0		27	14,107	-65.2		20	13,389	-51.0		18	13,845	-58.1		15	13,961	-65.2		27	13,594	-54.3		28	13,605	-55.9	
125----	16	14,617	-54.0		27	15,203	-70.5		19	14,575	-52.3		10	14,996	-62.0		13	15,055	-69.2		25	14,764	-56.5		27	14,753	-58.9	
100----	12	16,070	-55.0		27	16,507	-76.3		14	16,042	-53.9						13	16,372	-73.6		21	16,186	-59.2		21	16,148	-61.1	
80-----	8	17,519	-55.5		27	17,788	-77.3		6	17,433	-55.1						8	17,690	-74.5		14	17,595	-60.1		16	17,537	-62.0	
60-----					19	19,468	-69.8														5	19,372	-59.6		6	19,338	-61.2	
50-----					15	20,569	-65.4																					

Standard pressure surface (mb.)	EL PASO, TEX. (879 MB.)				ELY, NEV. (807 MB.)				GLASGOW, MONT. (939 MB.)				GRAND JUNCTION, COLO. (849 MB.)				GREAT FALLS, MONT. (884 MB.)				GREENSBORO, N. C (985 MB.)				HATTERAS, N. C. (1016 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	1,195	15.7	20	31	1,908	1.4	60	31	648	- 6.3	78	31	1,474	5.7	48	31	1,128	- 2.2	66	31	273	6.3	64	31	3	11.5	74
1,000--	31	80			31	137			31	151			31	111			31	132			31	145			31	139	13	69
950----	31	533			31	569			31	559			31	546			31	550			31	570	7.3	50	31	572	9.2	60
900----	31	999			31	1,016			31	981	- 5.1	66	31	996			31	987			31	1,011	5.1	49	31	1,013	6.8	54
850----	31	1,482	15.7	22	31	1,483			31	1,430	- 6.3	59	31	1,465			31	1,436	- 3.0	59	31	1,476	2.8	51	31	1,481	4.9	45
800----	31	1,991	11.6	24	31	1,977	3.2	50	31	1,902	- 8.0	58	31	1,962	4.7	37	31	1,914	- 5.9	59	31	1,965	0.8	50	31	1,974	2.6	44
750----	31	2,532	7.6	25	31	2,499	- 0.5	47	31	2,406	-10.4	57	31	2,490	0.7	39	31	2,423	- 8.6	61	31	2,488	- 1.5	51	31	2,500	0.5	45
700----	31	3,090	3.1	27	31	3,043	- 4.9	51	31	2,929	-13.4	60	31	3,034	- 3.7	43	31	2,948	-12.2	63	31	3,029	- 3.9	47	31	3,044	- 2.4	47
650----	31	3,689	- 1.5	30	31	3,625	- 9.1	54	31	3,498	-16.4	60	31	3,617	- 8.4	47	31	3,522	-15.2	57	31	3,617	- 7.0	45	30	3,633	- 5.1	47
600----	31	4,317	- 6.2		31	4,236	-12.7	50	31	4,088	-20.0	56	31	4,229	-13.2	50	31	4,111	-18.7	54	31	4,231	-10.4	42	30	4,255	- 8.2	38
550----	30	4,997	-11.2		31	4,901	-17.0	48	31	4,735	-23.8	54	31	4,892	-16.9	47	31	4,760	-23.2	52	31	4,904	-14.2	41	30	4,929	-12.4	38
500----	29	5,713	-16.4		31	5,604	-21.6	45	31	5,417	-28.4	53	31	5,597	-21.5	48	31	5,444	-28.3	51	30	5,613	-18.6	40	30	5,647	-17.3	38
450----	29	6,500	-22.5		31	6,375	-26.7	41	31	6,165	-33.6	55	30	6,368	-26.8	48	31	6,197	-33.4	50	30	6,394	-24.0	39	30	6,429	-22.7	39
400----	29	7,351	-29.0		31	7,212	-32.7	40	31	6,981	-39.4	55	30	7,203	-32.6	45	31	7,009	-39.1	52	30	7,241	-29.5	40	30	7,283	-28.9	40
350----	27	8,291	-35.8		31	8,140	-39.0		31	7,883	-45.7		30	8,129	-39.5		31	7,911	-45.6		30	8,181	-35.9	37	28	8,219	-35.8	42
300----	25	9,343	-43.3		29	9,185	-46.9		31	8,894	-52.2		30	9,167	-46.6		29	8,925	-52.3		30	9,236	-42.8		26	9,272	-43.0	
250----	22	10,546	-52.1		29	10,371	-54.9		30	10,068	-56.3		30	10,356	-53.7		27	10,080	-55.9		30	10,447	-50.0		25	10,472	-50.8	
200----	20	11,966	-57.3		29	11,785	-57.0		26	11,474	-54.1		30	11,776	-56.7		21	11,493	-53.9		27	11,900	-55.5		23	11,907	-56.5	
175----	18	12,802	-58.4		26	12,639	-56.7		24	12,328	-52.9		29	12,629	-55.4		17	12,362	-52.5		25	12,754	-55.6		21	12,762	-56.2	
150----	17	13,760	-60.5		24	13,625	-58.0		23	13,324	-52.4		26	13,622	-55.2		13	13,381	-52.9		18	13,743	-56.5		17	13,748	-57.1	
125----	17	14,890	-62.8		19	14,769	-60.4		21	14,495	-53.2		23	14,794	-57.8		10	14,563	-54.2		11	14,927	-59.1		9	14,906	-59.6	
100----	16	16,261	-65.5		10	16,197	-61.7		16	15,951	-54.5		17	16,174	-60.8		6	16,020	-54.5									
80-----	14	17,602	-67.6		7	17,586	-63.0		7	17,416	-54.0		8	17,565	-62.1													
60-----	6	19,348	-63.4																									

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb)	HAVANA, CUBA. (1012 MB.)				HONOLULU, T. H. (1017 MB.)				INTERNAT. FALLS, MINN. (972 MB.)				JOLIET, ILL. (993 MB.)				LAKE CHARLES, LA. (1016 MB.)				LANDER, WYO. (824 MB.)				LAS VEGAS, NEV. (936 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	28	49	22.4	84	31	3	24.2	64	31	361	- 9.7	65	31	179	0.2	76	31	5	14.6	78	31	1,696	0.5	52	31	660	14.5	22
1,000--	28	157	22.2	82	31	151	22.1	64	31	137			31	124			31	141	14.7	70	31	110			31	96		
950----	28	609	20.1	71	31	597	18.4	70	31	537	- 7.9	59	31	539	- 1.1	69	31	581	13.5	58	31	539			31	536		
900----	28	1,068	17.3	73	31	1,057	15.0	74	31	953	-10.2	59	31	965	- 3.2	67	31	1,030	12.1	47	31	985			31	996	15.7	
850----	28	1,554	14.2	74	31	1,539	13.0	60	31	1,392	-11.7	59	31	1,417	- 4.4	65	31	1,507	10.5	44	31	1,445			31	1,477	11.8	21
800----	28	2,065	11.8	62	31	2,048	11.9	38	31	1,856	-12.5	51	31	1,893	- 5.9	64	31	2,011	8.5	45	31	1,934	0.5	45	31	1,979	7.7	23
750----	28	2,605	9.9	46	31	2,592	9.8	26	31	2,355	-14.2	49	31	2,403	- 8.1	61	31	2,551	6.5	37	31	2,452	- 3.3	47	31	2,512	3.9	27
700----	28	3,174	7.7	36	31	3,155	6.7		31	2,868	-16.1	49	31	2,931	-10.5	61	31	3,105	3.8	32	31	2,990	- 6.8	49	31	3,063	- 0.2	31
650----	27	3,786	4.7		31	3,764	3.3		30	3,434	-18.6	48	30	3,509	-13.3	55	31	3,709	0.5	31	31	3,571	-10.9	50	31	3,655	- 3.9	31
600----	27	4,430	1.1		31	4,404	- 0.6		30	4,021	-21.4	47	29	4,102	-16.6	56	31	4,341	- 4.0	29	31	4,174	-15.1	47	31	4,279	- 7.8	
550----	27	5,125	- 3.3		31	5,095	- 5.0		30	4,661	-25.0	49	29	4,758	-20.2	52	31	5,025	- 8.4		31	4,831	-19.6	44	30	4,959	-12.1	
500----	27	5,870	- 8.5		31	5,835	-10.2		29	5,343	-29.1	49	29	5,452	-24.4	45	31	5,754	-13.8		31	5,527	-23.9	42	30	5,680	-17.1	
450----	27	6,679	-14.5		31	6,644	-16.4		29	6,094	-33.9	50	29	6,220	-29.4	41	31	6,548	-19.6		31	6,293	-29.3	41	30	6,463	-22.8	
400----	27	7,560	-21.4		31	7,513	-23.2		29	6,904	-39.4		27	7,045	-35.0	41	31	7,410	-26.1	31	31	7,119	-35.4	41	30	7,315	-29.5	36
350----	27	8,532	-28.6		31	8,476	-30.7		29	7,806	-45.4		26	7,968	-41.5		31	8,362	-33.2		31	8,034	-42.6		29	8,253	-36.6	
300----	27	9,616	-37.4		30	9,555	-38.7		26	8,804	-52.1		25	9,011	-48.4		30	9,427	-41.6		31	9,058	-49.5		29	9,301	-45.3	
250----	27	10,848	-47.1		27	10,789	-46.8		24	9,956	-55.1		25	10,196	-53.0		30	10,638	-50.8		31	10,236	-54.9		29	10,492	-54.3	
200----	27	12,295	-56.5		27	12,241	-55.3		24	11,385	-53.1		23	11,637	-53.7		27	12,068	-57.9		30	11,647	-55.0		29	11,898	-59.8	
175----	27	13,133	-60.8		26	13,087	-60.4		20	12,229	-51.4		21	12,491	-52.2		27	12,908	-58.8		30	12,501	-53.7		27	12,740	-58.6	
150----	26	14,083	-65.8		26	14,035	-65.8		17	13,231	-51.5		17	13,485	-53.5		26	13,870	-61.5		29	13,489	-54.5		26	13,702	-58.3	
125----	25	15,176	-70.3		26	15,127	-71.2		11	14,470	-51.2		15	14,655	-54.3		25	14,989	-64.1		29	14,652	-55.8		21	14,832	-60.0	
100----	18	16,490	-74.6		25	16,431	-75.2		7	15,943	-52.0		10	16,053	-56.8		20	16,353	-67.8		26	16,067	-58.5		14	16,223	-62.6	
80-----	12	17,798	-73.8		9	17,726	-74.2										13	17,685	-68.6		21	17,477	-58.0		11	17,596	-63.0	
60-----																					5	19,320	-58.1		5	19,370	-60.9	

Standard pressure surface (mb)	LITTLE ROCK, ARK. (1007 MB.)				MAZATLAN, MEXICO (1011 MB.)				MEDFORD, ORE. (970 MB.)				MERIDA, MEXICO (1012 MB.)				MIAMI, FLA. (1019 MB.)				NANTUCKET, MASS. (1012 MB.)				NASHVILLE, TENN. (996 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	79	9.9	59	30	14	20.7	80	31	401	7.3	76	31	27	26.2	67	31	4	21.0	75	29	14	0.6	76	30	177	8.2	64
1,000--	31	134			30	106	20.3	69	31	151			31	129	25.3	67	31	166	21.0	71	29	106	0.7	69	30	140		
950----	31	563	9.3	55	30	565	22.4	30	31	578	7.7	63	31	579	22.8	64	31	608	18.5	66	29	517	- 0.1	60	30	565	7.1	54
900----	31	1,008	7.0	56	30	1,020	21.4	23	31	1,019	5.0	63	31	1,048	19.8	67	31	1,071	15.9	60	29	950	- 1.7	58	30	1,008	4.8	53
850----	31	1,476	5.0	55	30	1,511	18.4	24	31	1,482	1.8	64	31	1,539	16.5	67	31	1,555	14.0	52	29	1,403	- 3.8	54	30	1,472	2.8	53
800----	31	1,969	3.2	49	30	2,027	15.1	24	31	1,968	- 1.6	63	31	2,052	13.0	69	31	2,065	11.9	47	29	1,881	- 5.0	53	30	1,961	0.4	55
750----	31	2,496	0.9	48	30	2,580	11.8		31	2,485	- 4.5	55	31	2,598	10.4	59	31	2,605	9.1	46	29	2,393	- 6.7	50	30	2,484	- 2.5	54
700----	31	3,042	- 1.8	44	30	3,143	8.0		31	3,019	- 7.7	49	30	3,165	8.6	36	31	3,170	5.9	42	29	2,924	- 8.9	46	30	3,021	- 4.9	48
650----	31	3,633	- 4.7	36	29	3,754	3.7		31	3,596	-11.1	50	30	3,780	5.1		31	3,776	2.5	37	29	3,501	-11.4	44	30	3,608	- 7.5	43
600----	31	4,254	- 8.7	32	27	4,394	- 1.0		31	4,202	-14.7	50	29	4,422	1.2		31	4,416	- 0.8		29	4,105	-14.4	44	30	4,220	-10.7	41
550----	31	4,928	-12.9	32	26	5,085	- 5.7		31	4,858	-18.8	47	29	5,114	- 3.3		31	5,107	- 4.8		29	4,765	-18.1	44	30	4,892	-14.5	40
500----	31	5,644	-17.4	34	23	5,821	-10.8		31	5,560	-23.2	47	29	5,863	- 8.7		31	5,849	- 9.5		29	5,466	-22.3		29	5,605	-18.8	35
450----	31	6,430	-22.6		23	6,630	-16.9		31	6,325	-28.5	46	29	6,674	-14.5		31	6,656	-15.4		28	6,231	-27.5	43	29	6,388	-24.4	
400----	31	7,281	-28.4		21	7,495	-23.3		30	7,153	-34.2	43	29	7,554	-21.0		31	7,533	-21.9		28	7,066	-33.1		29	7,231	-30.6	
350----	31	8,225	-35.2		20	8,455	-30.9		30	8,075	-40.7		29	8,525	-28.8		31	8,502	-29.1		28	7,991	-39.7		29	8,166	-37.7	
300----	30	9,279	-43.0		20	9,530	-39.1		30	9,109	-47.8		28	9,611	-37.5		30	9,586	-37.5		27	9,037	-46.2		29	9,212	-44.9	
250----	29	10,484	-50.9		17	10,748	-48.7		29	10,292	-54.2		28	10,842	-47.4		30	10,818	-47.1		25	10,251	-51.8		28	10,402	-52.7	
200----	26	11,921	-55.6		15	12,175	-58.0		27	11,704	-56.6		25	12,283	-57.3		29	12,264	-55.8		19	11,708	-54.9		26	11,835	-56.4	
175----	22	12,774	-56.2		13	13,004	-61.4		25	12,552	-54.5		25	13,117	-62.4		27	13,110	-59.9		17	12,570	-53.9		24	12,690	-56.3	
150----	14	13,753	-57.1		11	13,953	-64.4		25	13,537	-55.4		24	14,056	-67.3		27	14,063	-63.7		15	13,563	-54.5		21	13,660	-56.4	
125----	10	14,894	-60.6		9	15,057	-68.3		21	14,700	-57.7		18	15,143	-71.4		25	15,172	-67.9		9	14,714	-55.8		18	14,794	-59.8	
100----					8	16,383	-70.9		11	16,112	-59.4		12	16,435	-77.7		21	16,505	-71.9						7	16,200	-61.9	
80-----									5	17,465	-59.7						5	17,856	-74.1									

Standard pressure surface (mb)	NEW ORLEANS, LA. (1018 MB.)				NORTH PLATTE, NEBR. (915 MB.)				OAKLAND, CALIF. (1019 MB.)				OKLAHOMA CITY, OKLA. (969 MB.)				OMAHA, NEBR. (979 MB.)				PHOENIX, ARIZ. (973 MB.)				PITTSBURGH, PA. (970 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	2	14.7	78	31	849	- 0.7	69	31	6	11.8	72	31	391	7.9	52	31	308	0.9	67	31	338	17.4	37	31	382	0.6	71
1,000--	31	153	14.9	71	31	127			31	167	11.1	71	31	128			31	133			31	103			31	131		
950----	31	591	13.3	65	31	545			31	597	9.0	65	31	556	8.3	48	31	548	- 0.8	58	31	549	20.7	21	31	547	0.2	67
900----	31	1,040	11.5	53	31	981	- 0.1	59	31	1,041	7.6	51	31	1,001	7.1	46	31	976	- 2.5	59	31	1,010	17.3	20	31	977	- 1.7	64
850----	31	1,517	10.6	44	31	1,438	- 0.8	52	31	1,510	5.6	41	31	1,469	5.5	44	31	1,429	- 3.4	56	31	1,493	13.3	22	31	1,430	- 3.9	62
800----	31	2,021	8.8	43	31	1,920	- 2.3	49	31	2,003	3.1	38	31	1,963	3.9	37	31	1,907	- 4.8	57	31	1,999	9.1	25	31	1,906	- 5.7	59
750----	31	2,561	7.1	37	31	2,434	- 4.7	48	31	2,534	0.6	36	31	2,491	1.6	31	31	2,421	- 6.6	60	31	2,536	5.2	27	31	2,420	- 7.7	58
700----	31	3,117	4.3	33	31	2,970	- 7.7	47	31	3,076	- 2.1	35	31	3,038	- 1.5	29	31	2,951	- 8.7	57	31	3,087	1.6	26	31	2,945	- 9.8	55
650----	31	3,723	0.9	34	31	3,549	-11.0	49	31	3,665	- 5.8	38	31	3,628	- 5.0	31	31	3,529	-11.7	51	31	3,688	- 2.2		31	3,524	-12.5	51
600----	30	4,356	- 3.1		31	4,154	-14.4	50	31	4,284	- 9.7	40	31	4,248	- 9.2	33	31	4,132	-15.0	43	31	4,311	- 6.2		31	4,122	-15.6	48
550----	28	5,042	- 7.5		31	4,813	-18.3	51	31	4,955	-13.8	39	31	4,919	-13.8	37	31	4,792	-18.9	42	31	4,990	-10.8		31	4,779	-19.2	46
500----	28	5,775	-12.6		31	5,513	-23.0	50	31	5,669	-18.8	44	31	5,632	-19.0	38	30	5,498	-23.7	40	31	5,711	-15.9		30	5,474	-24.0	44
450----	28	6,572	-18.4		31	6,278	-28.6	47	31	6,448	-24.5	44	31	6,411	-24.5	38	29	6,260	-29 2	38	31	6,497	-21.6		30	6,242	-29.0	42
400----	28	7,440	-24.9		31	7,109	-35.0	48	31	7,293	-30.6	42	31	7,256	-30.7		29	7,090	-35.0	37	31	7,352	-28.4		30	7,068	-34.6	37
350----	28	8,397	-32.0		31	8,027	-41.5		30	8,226	-37.6		31	8,190	-37.4		28	8,012	-41.4		31	8,293	-35.8		30	7,990	-40.4	
300----	28	9,468	-40.2		31	9,056	-48.6		29	9,277	-45.9		30	9,237	-44.7		28	9,043	-48.4		31	9,346	-43.8		30	9,025	-46.9	
250----	28	10,686	-49.5		30	10,243	-53.6		27	10,487	-55.3		29	10,437	-51.6		27	10,232	-54.7		31	10,546	-52.8		30	10,219	-51.4	
200----	27	12,115	-57.2		28	11,673	-54.9		25	11,894	-60.7		26	11,872	-56.2		27	11,649	-55.8		28	11,962	-58.7		29	11,663	-52.6	
175----	25	12,956	-58.1		28	12,530	-53.1		25	12,730	-58.2		22	12,719	-55.3		25	12,504	-54.6		25	12,813	-58.7		29	12,525	-52.7	
150----	25	13,920	-61.1		27	13,516	-54.3		22	13,720	-58.6		16	13,682	-56.7		23	13,495	-54.9		23	13,786	-59.0		26	13,521	-54.1	
125----	25	15,043	-64.0		23	14,683	-56.0		19	14,868	-61.3		15	14,831	-59.8		19	14,641	-56.7		17	14,928	-61.2		20	14,671	-56.2	
100----	21	16,396	-67.6		21	16,091	-57.6		13	16,247	-63.8		11	16,213	-61.5		16	16,054	-58.3		7	16,324	-65.3		16	16,096	-58.7	
80-----	18	17,733	-67.4		16	17,487	-58.9		5	17,659	-63.8						11	17,448	-59.2						13	17,490	-58.6	

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

MARCH 1950

Standard pressure surface (mb.)	PORTLAND, MAINE. (1010 MB.)				RAPID CITY, S. DAK. (902 MB.)				ST. CLOUD, MINN. (977 MB.)				SAN ANTONIO, TEX. (987 MB.)				SAN JUAN, P. R. (1017 MB.)				SANTA MARIA, CALIF. (1010 MB.)				S.STE. MARIE, MICH. (987 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	20	- 3.8	75	28	980	- 4.6	70	31	317	- 5.7	80	31	240	14.9	62	30	19	23.1	81	31	71	10.7	79	31	221	- 7.3	77
1,000--	31	99			28	150			31	129			31	134			30	165	22.2	79	31	153	10.8	74	31	115		
950----	31	509	- 4.6	54	28	566			31	536	- 6.4	73	31	569	15.3	58	30	609	19.0	81	31	588	11.3	58	31	517	- 7.4	70
900----	31	929	- 6.3	53	28	994			31	954	- 7.8	71	31	1,025	14.0	55	30	1,073	15.9	79	31	1,034	10.5	51	31	936	- 9.2	66
850----	31	1,374	- 7.7	51	28	1,446	- 2.2	54	31	1,399	- 8.0	62	31	1,506	12.9	42	30	1,557	13.0	74	31	1,508	7.5	42	31	1,376	-11.0	63
800----	31	1,845	- 8.8	50	28	1,926	- 4.1	53	31	1,869	- 9.0	54	31	2,014	10.9	38	30	2,065	10.7	65	31	2,006	6.1	33	31	1,841	-12.2	57
750----	31	2,349	-10.3	44	28	2,441	- 5.9	52	31	2,374	-10.5	52	31	2,553	8.6	32	30	2,608	9.7		31	2,541	3.5	33	31	2,340	-13.8	57
700----	31	2,872	-12.8	45	28	2,971	- 8.6	52	31	2,896	-12.8	52	31	3,117	5.1	28	30	3,173	8.4		31	3,089	0.8	28	31	2,855	-15.9	59
650----	31	3,443	-15.7	43	28	3,550	-11.8	51	31	3,465	-15.4	50	31	3,721	1.5		30	3,788	5.4		31	3,683	- 2.8	31	31	3,419	-17.9	57
600----	30	4,031	-19.0	43	28	4,150	-15.5	48	31	4,060	-18.4	48	31	4,357	- 3.1		30	4,429	1.9		31	4,310	- 6.5	30	31	4,006	-20.8	54
550----	29	4,680	-22.3	41	28	4,808	-19.6	48	31	4,705	-21.7	49	31	5,041	- 8.0		30	5,124	- 2.4		30	4,988	-10.8	29	31	4,650	-24.4	54
500----	28	5,364	-26.6	43	28	5,504	-24.3	48	31	5,401	-25.9	50	31	5,774	-13.3		28	5,874	- 7.1		29	5,716	-15.8	33	30	5,328	-29.3	52
450----	27	6,119	-32.1		28	6,267	-29.7	47	31	6,158	-31.0	51	31	6,569	-19.3		28	6,690	-12.8		29	6,503	-21.3	34	30	6,076	-34.5	53
400----	26	6,948	-37.2		28	7,093	-35.8	48	31	6,983	-36.6	49	31	7,433	-25.9	34	28	7,574	-19.6		29	7,361	-27.7	36	30	6,887	-40.3	
350----	24	7,834	-43.9		27	8,011	-42.3		31	7,894	-43.6		31	8,385	-33.2		28	8,552	-26.6		29	8,306	-34.9		30	7,786	-45.6	
300----	23	8,849	-49.7		26	9,036	-49.3		30	8,912	-50.0		31	9,450	-41.4		27	9,645	-35.0		28	9,361	-43.2		30	8,800	-50.8	
250----	19	10,018	-52.1		25	10,216	-55.2		30	10,091	-53.8		29	10,669	-50.0		26	10,891	-44.3		28	10,563	-53.0		27	9,995	-53.3	
200----	18	11,468	-52.4		25	11,634	-55.7		28	11,518	-53.3		24	12,096	-56.9		26	12,350	-55.7		27	11,969	-59.0		24	11,423	-53.1	
175----	18	12,333	-51.0		24	12,492	-53.9		28	12,380	-51.9		21	12,946	-57.9		25	13,185	-61.4		27	12,808	-57.8		22	12,290	-52.0	
150----	18	13,334	-51.6		22	13,482	-53.9		25	13,391	-51.2		17	13,921	-61.6		25	14,129	-66.8		26	13,776	-58.4		18	13,284	-52.8	
125----	16	14,495	-53.4		20	14,654	-54.7		22	14,566	-52.4		14	15,031	-66.0		23	15,216	-71.6		21	14,933	-60.4		13	14,471	-53.3	
100----	14	15,920	-53.4		16	16,101	-56.2		19	16,018	-53.3		7	16,362	-69.5		19	16,522	-76.1		15	16,337	-63.9		8	15,929	-54.7	
80-----	6	17,361	-55.2		10	17,554	-55.9		11	17,452	-54.0						10	17,790	-76.4		11	17,719	-64.9					

Standard pressure surface (mb.)	SPOKANE, WASH. (929 MB.)				SWAN ISLAND, W. I. (1015 MB.)				TACUBAYA, MEXICO (773 MB.)				TAMPA, FLA. (1018 MB.)				TATOOSH ISLAND, WASH. (1010 MB.)				TOLEDO, OHIO (992 MB.)				WASHINGTON, D. C. (1013 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	722	2.1	77	31	10	25.1	76	30	2,306	18.1	40	30	9	18.0	78	31	31	6.0	80	31	191	- 1.1	77	31	25	5.1	56
1,000--	31	123			31	140	24.1	77	30	39			30	163	18.2	73	31	109	5.5	77	31	125			31	133	3.9	51
950----	31	543			31	595	20.6	79	30	504			30	605	16.5	62	31	532	3.1	77	31	539	- 1.4	69	31	552	2.4	55
900----	31	979	1.7	72	31	1,053	17.7	72	30	984			30	1,061	14.0	61	31	964	0.1	78	31	964	- 3.2	67	31	984	0.1	58
850----	31	1,437	- 1.0	69	31	1,540	14.7	66	30	1,483			30	1,541	11.9	53	31	1,420	- 2.8	79	31	1,416	- 4.5	58	31	1,440	- 2.0	58
800----	31	1,918	- 4.2	69	31	2,051	12.2	53	30	2,014			30	2,048	10.4	44	31	1,898	- 5.3	72	31	1,892	- 6.4	56	31	1,921	- 3.9	56
750----	31	2,429	- 7.6	70	31	2,599	10.2	42	30	2,572	16.1	39	30	2,590	7.8	41	31	2,407	- 7.8	63	31	2,401	- 8.5	58	31	2,434	- 5.6	53
700----	31	2,957	-10.9	64	31	3,162	8.3		30	3,149	11.5	43	30	3,148	4.8	39	31	2,936	-10.7	56	31	2,927	-10.5	57	31	2,968	- 7.7	52
650----	31	3,530	-14.2	61	31	3,780	6.0		30	3,770	6.4	50	30	3,754	1.4	37	31	3,505	-14.3	53	31	3,502	-13.6	56	31	3,548	-10.6	48
600----	31	4,126	-18.0	60	31	4,421	2.6		29	4,415	1.1	59	30	4,388	- 2.7	32	31	4,104	-18.1	54	31	4,098	-17.1	57	31	4,153	-13.7	
550----	31	4,774	-22.0	59	31	5,119	- 1.8		29	5,113	- 4.4	58	29	5,079	- 6.9		30	4,752	-22.2	54	30	4,752	-20.5	51	31	4,815	-17.5	
500----	31	5,466	-26.9	57	31	5,869	- 7.2		29	5,852	- 9.6	50	28	5,811	-11.5		30	5,441	-26.7	51	30	5,446	-24.6	49	31	5,518	-21.8	40
450----	31	6,220	-32.4	54	31	6,690	-13.0		28	6,669	-14.8	40	28	6,619	-17.1		30	6,198	-31.6	50	30	6,211	-29.6	46	31	6,288	-26.9	41
400----	30	7,039	-38.4	53	31	7,568	-20.0		27	7,540	-21.1		28	7,484	-23.4		30	7,018	-37.1	52	30	7,035	-35.3		31	7,125	-32.8	37
350----	30	7,945	-44.4		31	8,544	-27.4		26	8,512	-28.8		28	8,447	-30.6		29	7,927	-42.7		30	7,953	-41.4		31	8,052	-39.5	
300----	30	8,963	-50.1		31	9,633	-36.1		26	9,596	-37.6		28	9,523	-38.9		25	8,959	-47.7		28	8,973	-48.1		31	9,089	-46.7	
250----	30	10,141	-53.9		30	10,875	-45.3		21	10,831	-47.2		28	10,748	-48.4		21	10,162	-52.8		26	10,158	-52.5		31	10,280	-52.3	
200----	30	11,571	-53.7		29	12,333	-55.8		17	12,269	-57.8		27	12,183	-57.1		13	11,606	-52.9		22	11,589	-53.3		31	11,711	-54.4	
175----	26	12,433	-51.9		28	13,168	-61.2		17	13,101	-62.8		25	13,023	-59.4		5	12,485	-54.4		21	12,453	-52.5		28	12,573	-54.5	
150----	23	13,421	-53.0		27	14,110	-66.8		16	14,041	-67.5		24	13,982	-62.7						18	13,448	-52.6		26	13,551	-54.8	
125----	18	14,606	-53.6		27	15,197	-72.3		13	15,134	-71.4		20	15,083	-66.4						17	14,626	-54.4		24	14,710	-57.1	
100----	12	16,056	-54.9		24	16,494	-77.3		11	16,437	-76.9		16	16,425	-69.8						15	16,048	-56.7		22	16,111	-59.5	
80-----	5	17,551	-55.5		21	17,774	-76.7		7	17,732	-77.5		5	17,762	-71.1						8	17,501	-58.5		14	17,503	-60.8	
60-----					11	19,455	-68.3																					
50-----					7	20,557	-64.7																					

Note; All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity date may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

PILOT BALLOON DATA

Average monthly resultant winds

Table 21 — MARCH 1950

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N.Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	243	2.3	29	296	4.6	27	260	3.0	27	304	2.1	27	300	3.5	30	335	1.0	28	133	4.5	29	255	4.2	30	303	1.9	28	249	3.6	28	243	3.7	29	267	4.5
500	--	---	---	--	---	---	27	267	4.4	--	---	---	--	---	---	--	---	---	27	145	6.3	29	246	5.6	30	268	3.5	28	243	4.8	28	248	4.7	--	---	---
1,000	31	244	3.8	--	---	---	26	263	5.4	--	---	---	27	302	4.2	30	314	.9	25	185	4.1	23	249	6.5	28	265	6.0	26	257	8.2	26	250	4.9	--	---	---
1,500	28	229	5.9	--	---	---	25	261	6.4	27	277	4.7	23	298	5.0	30	275	1.9	20	237	3.5	16	254	7.5	23	287	7.6	24	268	10.6	25	254	7.2	29	265	4.9
2,000	28	250	8.5	29	288	6.0	23	271	9.6	26	279	7.2	22	302	7.0	30	260	4.3	19	272	3.8	14	260	8.8	17	294	9.7	23	270	13.7	21	264	9.8	29	260	5.1
2,500	27	261	10.9	29	279	6.7	22	275	13.2	26	278	9.4	21	293	8.4	26	265	7.3	17	262	4.5	11	266	10.1	14	301	11.8	21	273	15.1	18	270	12.2	29	267	7.1
3,000	25	270	11.9	28	278	8.2	21	279	16.8	22	275	11.0	20	287	10.1	24	271	8.6	15	260	8.1				14	298	14.1	19	272	17.1	17	279	14.8	29	268	10.2
4,000	25	277	17.6	24	286	13.4	16	280	18.7	17	287	12.4	19	290	14.6	16	276	11.1	14	266	11.5				12	294	17.1	15	274	20.3	17	282	18.9	28	272	12.5
5,000	22	277	18.8	22	287	17.6	14	277	22.8	13	288	15.0	13	290	18.1	12	286	14.1	13	268	13.9				11	288	22.2	12	278	19.9	10	273	22.0	25	271	15.4
6,000	15	275	19.1	20	287	19.5	12	280	26.5	11	292	20.3							12	268	17.8				10	286	24.8	10	272	21.6				22	271	17.9
8,000				14	287	21.2																												14	280	19.9
10,000																																		11	276	26.1

Altitude (meters) m.s.l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jackson-ville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	29	248	2.9	31	301	2.7	26	259	4.0	28	247	0.3	28	273	0.8	27	232	2.3	31	214	1.3	30	241	1.5	29	305	2.1	31	135	2.8	25	249	1.9	30	237	2.0
500	--	---	---	--	---	---	26	263	4.1	--	---	---	28	256	4.7	27	240	3.0	--	---	---	30	227	3.1	29	298	1.6	31	160	2.3	25	228	2.0	30	234	4.0
1,000	--	---	---	--	---	---	26	258	5.7	28	260	2.8	27	254	6.2	22	240	4.3	31	215	2.2	29	240	5.2	29	236	2.3	30	215	2.2	20	277	2.9	27	235	5.2
1,500	--	---	---	31	300	2.7	26	264	8.1	27	269	7.2	26	255	7.9	16	272	6.4	31	234	3.0	22	263	7.4	27	229	5.7	29	248	4.1	18	302	8.1	26	252	7.1
2,000	29	254	3.0	31	288	3.3	25	270	11.2	25	277	10.1	25	262	11.4	16	279	9.0	31	255	3.9	18	261	9.8	21	246	6.3	26	256	5.2	16	296	12.3	25	265	10.2
2,500	29	267	3.3	30	275	3.3	24	279	14.6	24	276	11.1	22	265	13.5	11	289	14.0	31	279	5.3	14	288	11.1	15	253	7.7	21	265	5.6	12	300	15.2	24	271	11.3
3,000	26	254	3.9	27	256	5.2	24	280	17.8	21	283	11.7	21	268	15.3				31	279	8.4	14	287	15.0	13	279	8.4	21	279	6.1	11	295	18.5	22	266	13.8
4,000	21	288	10.1	20	277	9.9	23	277	22.5	17	284	14.2	13	278	19.7				30	282	13.9	14	289	19.4	11	286	11.9	17	276	9.3				19	274	19.2
5,000	19	289	14.9	17	290	14.8	19	275	25.9	13	289	12.9	10	279	21.1				29	290	17.0	13	288	22.2	10	289	13.6	14	277	10.9				14	273	25.7
6,000	18	289	18.1	13	295	18.0	15	276	28.6										26	286	18.5	12	288	27.2	10	289	18.9	13	271	13.5				13	275	31.0
8,000																			17	292	22.2															
10,000																			11	291	25.3															

Altitude (meters) m.s.l.	New York, N.Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma, City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S.Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	27	298	4.4	31	271	3.1	31	241	3.5	27	299	1.9	31	271	1.4	28	352	3.2	28	310	1.1	29	241	1.7	30	112	1.4	31	263	3.8	25	292	1.6	27	202	4.3
500	27	286	5.7	31	282	3.0	31	245	3.8	27	301	2.2	31	256	1.8	--	---	---	28	314	1.2	29	237	2.9	30	127	1.5	31	277	2.5	25	286	1.8	27	207	7.0
1,000	25	289	7.6	27	289	3.3	31	249	4.6	27	276	3.3	31	249	2.8	28	352	3.1	26	259	1.4	26	231	5.0	29	174	1.2	28	282	2.2	22	279	2.6	25	213	6.7
1,500	23	299	9.2	23	301	4.0	28	265	6.9	24	274	5.8	30	253	3.2	28	321	5.2	22	289	4.2	24	255	7.2	27	248	2.8	25	292	3.0	17	281	5.2	17	217	7.4
2,000	18	299	10.7	22	306	5.5	27	272	9.3	20	291	7.7	30	260	4.4	26	305	7.8	16	289	5.2	20	274	9.9	25	268	6.3	25	294	3.9	15	280	5.6	13	222	6.4
2,500	13	292	11.4	19	315	6.9	24	271	11.5	18	287	9.5	29	265	6.3	25	302	10.0	14	289	6.4	17	272	12.4	23	268	9.5	25	294	5.9	13	301	6.0	10	243	8.3
3,000	11	278	10.1	19	307	8.4	24	274	12.7	16	293	12.1	29	264	8.0	21	299	12.3	13	297	9.4	16	271	14.5	23	272	12.0	23	291	7.9	12	304	9.6			
4,000				17	299	11.9	22	278	17.7	14	289	17.0	27	276	10.1	16	307	15.6				11	267	15.3	21	268	16.1	22	279	9.5	10	304	14.1			
5,000				15	294	12.6	18	286	20.7	10	293	19.9	26	281	13.3	15	304	16.6							19	273	19.5	20	279	11.4						
6,000				14	293	13.7	17	281	19.4				24	288	16.9										19	274	21.3	17	279	14.8						
8,000							12	289	24.9				15	286	17.4										13	274	28.4	10	271	19.3						

Altitude (meters) m.s.l.	Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	28	206	3.3	27	274	3.5
500	--	---	---	27	275	5.1
1,000	28	209	4.5	27	275	6.4
1,500	25	215	5.6	25	268	8.6
2,000	21	236	6.5	23	278	13.1
2,500	17	235	6.8	20	287	16.1
3,000	14	234	6.9	19	281	19.7
4,000	10	243	8.5	16	286	21.5
5,000				11	290	20.9

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

ble 22 — MARCH 1950

Altitude (meters) m.s.l.	Albuquerque, N.Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N.Dak. (505 m.)			Brownsville, Tex. (7 m.)			Caribou, Maine (191 m.)			Charleston, S. C. (13 m.)			Columbia, Mo. (237 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface	31	323	2.1	31	112	3.3	30	8	1.3	30	124	2.9	30	291	3.3	31	200	1.5	31	255	1.6
0	--	---	----	--	---	----	--	---	----	29	141	6.1	30	293	6.0	28	242	5.4	31	243	2.9
000	--	---	----	31	156	4.0	28	333	2.9	29	152	4.6	30	300	7.4	28	258	7.6	31	254	5.0
500	--	---	----	31	206	5.2	27	322	5.9	30	175	3.9	30	295	6.5	27	257	8.8	31	264	7.9
000	31	300	7.4	31	245	7.5	26	315	7.0	29	213	4.5	29	294	6.5	27	264	10.0	30	274	10.4
500	31	288	10.1	30	261	10.4	27	309	8.8	29	235	6.0	28	286	9.7	27	271	12.4	30	277	11.2
000	31	281	11.2	29	265	12.7	27	304	10.1	29	248	7.5	28	283	11.9	26	269	15.5	30	279	12.7
000	31	274	14.1	29	266	14.9	29	298	13.2	29	258	10.3	28	278	14.6	24	265	19.6	29	280	16.6
000	29	280	15.1	28	271	18.5	26	292	14.4	28	267	13.6	28	282	18.0	17	268	18.0	28	272	19.4
000	26	287	17.9	25	272	19.8	24	290	16.6	27	266	15.1	27	280	20.2	13	269	20.9	26	273	17.5
000	18	286	20.4	18	267	24.3	23	277	19.6	26	266	21.5	17	282	17.9				21	278	18.1
,000	12	293	19.3	13	272	29.3	18	269	22.0	24	264	24.1	13	269	19.1				16	276	19.9
,000							13	275	21.6	14	263	24.9	11	265	18.0				13	260	24.7
,000							11	280	18.2	10	263	24.7							10	259	21.7

Altitude (meters) m.s.l.	Grand Junction, Colo. (1,473 m.)			Greensboro, N. C. (275 m.)			Hatteras, N. C. (3 m.)			International Falls, Minn. (358 m.)			Little Rock, Ark. (80 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface	31	24	0.4	31	293	1.6	31	226	1.7	30	301	1.3	31	188	0.7
0	--	---	----	30	265	4.0	31	254	6.3	30	297	2.2	31	219	3.9
000	--	---	----	30	260	7.1	25	266	6.5	30	305	3.3	31	235	6.8
500	30	39	.2	29	273	9.8	23	265	9.2	30	306	4.1	31	247	9.3
000	30	259	3.0	28	277	11.2	22	267	11.2	30	308	5.4	29	267	10.4
500	30	257	4.9	26	278	12.2	22	266	14.7	29	308	6.2	28	272	13.1
000	30	259	7.6	24	273	14.3	20	275	16.6	29	309	7.5	28	274	15.5
000	28	277	9.8	23	271	17.7	17	272	19.7	28	294	9.2	28	264	19.0
000	29	287	14.0	22	271	21.3	16	272	23.0	28	298	12.7	27	268	22.2
000	27	296	17.4	20	268	23.3	13	277	24.9	27	292	14.4	25	263	26.2
000	20	288	17.2	15	264	30.8				26	291	18.6	17	258	29.0
,000	13	286	19.2	11	257	34.4				19	282	21.3			

Altitude (meters) m.s.l.	Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			New Orleans, La. (6 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface	30	286	1.7	31	138	1.0	28	290	2.7	31	205	0.9	31	117	0.9	31	276	2.6	28	116	1.3
0	29	284	1.7	31	162	2.4	28	265	6.7	31	219	3.8	31	192	2.9	31	294	3.6	28	143	1.7
,000	29	245	2.4	31	184	3.0	28	270	7.7	31	231	7.0	30	241	3.6	31	296	4.1	28	233	3.0
,500	30	237	4.5	31	220	2.8	27	272	9.2	30	253	9.4	29	262	6.1	31	302	5.2	28	262	6.2
,000	30	244	6.0	30	243	3.1	27	272	10.9	28	270	10.4	29	266	9.0	31	307	6.5	28	279	9.8
,500	30	249	8.1	30	255	4.4	27	270	13.3	28	271	12.1	29	268	13.0	31	299	7.6	28	289	12.3
,000	30	258	10.7	30	263	5.5	27	267	15.6	28	273	15.3	29	266	15.3	31	299	10.1	27	283	13.5
,000	30	270	14.6	30	262	7.4	25	271	18.7	26	279	18.8	28	272	18.7	30	299	13.6	27	280	17.4
,000	30	269	17.5	30	264	10.7	21	260	19.6	23	276	21.8	26	269	19.6	28	291	15.0	25	278	19.7
,000	26	270	19.1	30	267	15.8	18	262	19.6	19	271	23.6	24	270	22.3	26	285	17.0	22	272	21.9
,000	20	289	23.2	29	266	20.5	14	271	20.4	14	260	29.1	19	264	28.2	19	282	18.9	20	267	29.1
,000	14	273	26.5	29	273	28.2	10	263	31.0				12	255	37.5	15	272	17.1	14	274	27.9
,000				25	273	30.1															
,000				21	266	28.5															
,000				14	260	18.6															

Altitude (meters) m.s.l.	Rapid City, S.Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P. R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface	29	342	0.8	31	82	3.1	31	89	2.8	31	338	1.0	31	296	2.4
0	--	---	----	31	107	4.1	29	82	8.9	29	332	1.5	30	341	4.2
,000	29	340	.8	31	154	3.2	30	87	8.9	29	314	1.9	30	352	4.5
,500	29	282	2.4	31	213	4.0	30	89	8.2	26	298	3.2	30	350	5.5
,000	29	295	5.3	31	247	7.4	31	86	7.6	25	277	3.2	30	337	7.0
,500	29	295	7.7	31	261	10.2	31	89	7.6	25	277	5.2	30	327	8.5
,000	29	292	10.3	31	270	12.5	31	95	6.9	25	280	6.1	30	314	10.1
,000	28	292	13.2	30	270	16.0	31	84	5.3	26	283	9.5	30	299	11.7
,000	27	290	15.4	29	271	18.1	31	73	3.9	26	287	11.1	28	290	13.9
,000	27	287	18.3	28	265	22.2	29	33	1.8	25	280	13.1	25	282	14.6
,000	24	274	19.5	20	264	26.3	29	304	5.9	23	276	15.8	21	278	17.3
,000	19	276	23.0	12	271	30.7	27	274	14.3	21	267	19.0	17	286	15.5
,000	17	279	24.3				27	271	19.9	17	272	18.5	14	276	18.5
,000	14	280	21.7				26	280	17.1	12	276	15.2	11	279	14.8
,000							21	290	9.7						

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
urface	31	343	1.6	31	188	2.4	29	150	2.2
00	31	327	2.2	31	212	4.4	29	198	4.4
,000	31	317	3.0	30	229	6.5	28	214	5.5
,500	29	309	6.0	30	242	7.4	26	222	5.7
,000	25	314	6.3	30	247	7.5	26	243	6.1
,500	25	308	8.5	30	251	8.4	27	251	7.1
,000	22	302	9.3	29	268	10.7	26	259	8.7
,000	17	295	9.0	28	276	13.5	26	265	10.7
,000	16	287	10.1	27	276	14.3	27	272	12.0
,000	14	283	10.5	23	271	18.1	26	280	13.4
,000	12	290	13.4	20	290	21.6	22	271	18.3
0,000				16	282	18.8	10	275	23.0
2,000				12	284	17.7			

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.

SOLAR RADIATION DATA

Table 30.--Solar radiation intensities, tabulated in langleys. MARCH 19

TABLE MOUNTAIN, CALIF°

Date	Sun's zenith distance: A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a.m.	1.30 p.m.
	Air mass 3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76	Mb.	Mb.
March											
10----	1.27	1.35	1.45	1.55	----	----	----	----	----		
14----	----	----	----	1.41	----	----	----	----	----		
23----	1.15	1.22	1.33	1.46	----	----	----	----	----		
27----	1.08	1.18	1.29	1.43	----	----	----	----	----		
Average	1.17	1.25	1.36	1.46	----	----	----	----	----		
Departures	+.03	+.02	+.02	.00	----	----	----	----	----		

LINCOLN, NEBR.

	Air mass 4.77	3.81	2.86	1.91	*0.95	1.91	1.86	3.81	4.77		
March											
1-----	0.89	1.00	1.15	1.31	1.40	----	----	----	----	3.3	2.7
3-----	----	----	.87	1.13	1.34	----	----	----	----	3.8	4.2
6-----	----	----	1.01	1.20	1.36	----	----	----	----	7.5	6.9
8-----	----	1.02	1.18	1.33	1.43	1.31	1.18	1.06	0.98	1.8	1.9
13----	----	----	----	1.34	1.44	1.31	1.12	.99	.86	1.4	2.1
14----	.74	.89	1.04	1.22	1.38	----	----	----	----	2.5	3.5
22----	1.00	1.09	1.20	1.34	1.40	----	----	----	----	3.0	5.1
23----	.81	.90	.99	----	----	----	----	----	----	4.6	6.1
30----	----	.90	1.09	1.24	1.36	----	----	----	----	3.8	4.0
Average	.86	.97	1.07	1.26	1.39	1.31	1.15	1.03	.92		
Departures	+.03	+.04	-.01	-.01	-.10	+.05	+.07	+.10	+.11		

MADISON, WIS.

	Air mass 4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
March											
1-----	0.91	1.01	1.15	1.33	----	----	----	----	----	2.7	3.8
2-----	.99	1.11	1.25	1.40	----	1.37	1.14	----	----	1.0	1.1
4-----	.47	.64	.80	----	----	----	----	----	----	3.7	5.1
7-----	.54	.65	.79	.95	----	----	----	----	----	6.1	9.4
9-----	.92	1.07	1.18	1.34	----	----	----	----	----	1.1	2.1
14----	.66	.81	.94	----	----	----	----	----	----	1.3	4.0
15----	.84	.91	1.04	----	----	----	----	----	----	1.4	2.7
18----	.84	.96	1.08	1.26	----	----	----	----	----	1.7	2.7
25----	.58	----	----	.87	----	----	----	----	----	5.6	6.9
29----	.84	.95	1.06	1.22	1.26	----	----	----	----	2.6	3.1
Average	.76	.90	1.03	1.20	----	1.32	1.14	----	----		
Departures	-.04	-.05	-.06	-.07	----	+.04	-.02	----	----		

*Extrapolated

** Normal Incidence Pyrheliometer taken from Boston on March 7 for use by Mr. Hand on cross-country inspection trip.

** BOSTON, MASS.

Date	Sun's zenith distance: A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a.m.	1.30 p.m.
	Air mass 4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96	Mb.	Mb.
March											
2-----	0.62	0.74	1.03	1.33	----	----	----	----	----	1.7	1.1
3-----	1.09	1.16	1.21	1.48	----	1.36	----	----	----	.9	.9
6-----	.88	.93	1.17	1.42	----	1.43	1.27	1.15	1.04	2.9	1.8
**											
Average	.86	.94	1.14	1.41	----	1.40	1.27	1.15	1.04		
Departures	+.19	+.19	+.24	+.30	----	+.25	+.26	+.31	----		

BLUE HILL, MASS.

	Air mass 4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
March											
2-----	0.79	0.93	1.12	1.28	----	----	----	----	----	1.3	1.8
3-----	1.04	1.14	1.25	1.41	----	1.41	1.22	1.07	0.96	.5	.5
4-----	1.02	1.11	1.25	1.41	----	1.39	----	----	----	.5	.5
6-----	----	1.09	1.27	1.42	----	1.46	1.29	1.18	1.07	2.9	1.8
7-----	1.05	1.14	1.21	1.24	----	----	----	----	----	.8	1.8
10----	.97	1.08	1.19	1.36	----	1.39	1.24	1.09	.97	1.1	4.8
14----	----	----	----	1.08	----	----	----	----	----	3.3	2.8
15----	----	----	----	----	----	----	1.16	.99	.87	2.2	3.8
16----	.92	1.02	1.15	----	----	----	----	----	----	2.0	1.8
17----	----	----	----	----	----	1.36	1.18	1.06	.97	1.2	.8
19----	.89	.95	1.08	1.28	----	1.37	1.24	1.12	1.02	1.5	2.8
20----	.99	1.10	1.23	1.34	----	----	----	----	----	2.5	2.8
25----	.82	.95	1.06	----	----	----	----	----	----	5.2	5.8
26----	.96	1.06	1.18	----	----	----	----	----	----	3.5	2.8
30----	.74	.87	.98	----	----	1.23	1.06	.94	.82	2.7	2.8
Average	.93	1.04	1.16	1.31	----	1.37	1.20	1.06	.95		
Departures	+.05	+.07	+.07	+.06	----	+.13	+.14	+.11	+.11		

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface (langleys).

An explanation of Tables 30 and 33 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list o pyrheliometric stations is given on page 45 of that issue. An explanation o the formula used in computing the air mass values for each station listed i Table 30 appears in volume 75, No. 3, March 1947, p. 47.

Table 31-- Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface faci south at Blue Hill, Mass. during March, 1950.

Date	26	27	28	1	2	3	4	Mean	5	6	7	8	9	10	11	Mean	12	13	14	15	16	17	18	Mean
Langleys	490	572	535	96	524	643	582	492	433	603	537	154	343	550	146	395	330	40	427	434	479	468	415	370
Date	19	20	21	22	23	24	25	Mean	26	27	28	29	30	31	1	Mean								
Langleys	500	489	46	300	24	97	182	234	468	22	47	358	462	322	427	301								

Table 32-- Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground as received on a vertical surface faci north at Blue Hill, Mass. during March 1950.

Date	26	27	28	1	2	3	4	Mean	5	6	7	8	9	10	11	Mean	12	13	14	15	16	17	18	Mean
Langleys	101	108	99	58	116	110	105	100	105	95	85	78	73	56	70	80	62	22	144	106	84	96	109	89
Date	19	20	21	22	23	24	25	Mean	26	27	28	29	30	31	1	Mean								
Langleys	87	75	28	90	17	67	80	63	62	16	25	79	73	107	73	62								

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

Table 33.--Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. MARCH 1950

Date	Honolulu, T.H.	Pearl Harbor, T.H.	La Jolla, Calif.	Riverside, Calif.	Oak Ridge, Tenn.	Nashville, Tenn.	Fresno, Calif.	Davis, Calif.	Washington, D.C.	Columbia, Mo.	Soda Springs, Calif.	Seabrook, N.J.	Grand Lake, Colo.	Salt Lake City Utah	New York, N.Y.	State College, Pa.	Lincoln, Nebr.	Newport, R.I.	Put-in-Bay, Ohio	E. Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Amherst, Mass.	Lynn, Mass.	Ithaca, N.Y.	Twin Falls, Idaho	Albany, N.Y.	E. Lansing, Mich.	Madison, Wis.	Portland, Me.	Toronto, Ont.	Ottawa, Ont.	Caribou, Me.	Summit, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska	Aklavik, Mackenzie
1950																																						
Feb. 26------	571	459		149	458	421	420	333	351	236	450	314	467	432	346	221	340	421	428	383	409	322	327			378	377	373	439	409	360	410	408	268	327	156	---	124
Feb. 27------	572	602		370	475	319	156	376	389	329	456	426	258	239	423	373	307	446	433	358	451	424	394			281	403	367	389	384	382	402	405	183	257	199	166	150
Feb. 28------	497	339		405	127	32	397	381	153	396	495	328	311	446	259	75	206	408	61	380	432	356	338			405	212	91	349	400	22	166	430	312	306	199	136	135
Mar. 1-------	585	596		172	456	398	275	376	388	396	501	242	491	381	220	296	413	95	255	---	114	97	147			413	264	261	356	138	349	315	192	388	372	276	---	142
Mar. 2-------	415	487		132	518	459	397	334	366	421	429	317	292	377	323	301	330	387	298	---	448	412	384			391	343	342	470	416	363	430	343	188	377	228	---	159
Mar. 3-------	598	505		384	392	385	419	375	244	219	476	364	162	187	406	375	411	486	399	468	506	480	447			284	472	351	215	460	391	449	421	141	328	229	86	141
Mar. 4-------	621	576		433	271	353	472	321	442	447	499	416	332	454	441	344	427	489	324	457	499	458	438			377	449	234	363	458	245	430	452	56	276	322	---	82
Averages------	551	509		292	385	338	362	356	333	349	472	344	331	360	346	283	348	390	314	394	408	364	353			361	360	288	369	381	302	372	379	219	320	230	---	133
Departures----	+30	+37		-47	+33	+59	+10	+44	+52	+61	+45	---	+5	+35	+88	+44	+45	+103	+78	+120	+119	+128	---			+68	---	+64	+98	---	+92	---	---	+9	---	---	---	---
Mar. 5-------	545	576		319	361	416	409	339	444	453	109	454	498	273	411	404	435	416	363	363	400	405	223			232	287	363	355	224	233	186	142	268	(312)	297	139	146
Mar. 6-------	667	637		390	225	151	471	423	480	445	558	478	251	165	510	483	416	524	492	465	516	488	501			377	429	371	331	479	406	460	387	155	(65)	125	165	84
Mar. 7-------	669	613		425	299	254	473	332	222	291	430	339	387	295	382	319	92	510	330	437	480	372	436			432	453	311	172	458	282	372	458	266	306	249	209	142
Mar. 8-------	645	548		418	105	147	168	308	69	504	158	256	282	145	55	27	487	214	231	239	220	185	58			188	63	139	351	167	99	75	207	210	442	310	213	218
Mar. 9-------	120	86		281	548	450	512	230	464	308	148	344	413	432	307	317	318	236	415	248	353	276	351			276	342	300	435	247	353	292	104	283	454	374	249	139
Mar. 10------	498	332		444	473	418	548	388	478	224	532	460	216	212	518	456	67	533	436	486	530	459	507			248	494	379	270	487	308	480	411	301	435	376	238	157
Mar. 11------	613	616		238	115	22	414	557	88	44	472	215	245	246	164	91	202	206	45	204	212	175	157			367	200	73	159	229	19	254	468	473	451	328	245	220
Averages------	537	487		359	304	265	428	368	321	324	344	364	327	253	335	300	288	377	330	349	388	337	333			303	324	276	296	327	243	303	311	279	352	294	209	158
Departures----	-18	-26		-61	-21	-16	+30	+19	+9	+20	-59	---	-24	-62	+59	+23	-32	+76	+40	+73	+93	+78	---			-36	---	+22	-3	---	-6	---	---	+31	---	---	+60	---
Mar. 12------	651	634		495	61	66	545	475	199	56	574	269	266	263	333	76	411	365	211	341	346	341	403			500	144	313	433	388	344	465	391	387	423	393	256	148
Mar. 13------	553	427		378	92	25	529	404	46	519	468	46	546	468	41	38	497	41	310	43	52	24	55			330	68	369	519	77	248	238	349	238	468	219	149	220
Mar. 14------	637	600		486	510	494	526	498	511	509	510	464	459	321	386	437	491	521	541	398	479	411	429			270	---	405	407	476	399	495	473	180	476	313	249	230
Mar. 15------	683	655		387	433	287	482	475	427	154	582	404	326	437	421	520	162	453	543	354	375	331	381			482	---	415	446	338	428	440	497	198	474	222	268	223
Mar. 16------	593	571		469	67	60	508	277	76	253	388	152	581	478	260	198	437	445	261	439	493	414	465			356	---	196	208	520	359	503	514	112	244	353	268	224
Mar. 17------	454	506		457	524	506	377	494	483	415	263	491	502	238	436	360	254	497	101	453	507	428	506			58	515	104	348	504	110	450	525	94	488	266	246	202
Mar. 18------	592	572		427	472	516	426	130	492	341	310	438	253	553	384	449	141	332	556	---	450	368	230			444	415	469	518	192	468	400	353	301	487	375	---	228
Averages------	595	567		443	308	279	485	393	319	321	452	323	419	394	323	297	342	379	360	339	386	331	353			349	286	324	411	357	337	427	443	216	437	306	239	211
Departures----	+20	+46		+44	-21	-6	+73	+29	-2	-5	+81	---	+31	+56	+38	+22	+4	+56	+49	+32	+71	+24	---			+14	---	+61	+93	---	+44	---	---	-37	---	---	+43	---
Mar. 19------	615	617		487	333	285	306	282	561	42	226	551	396	146	558	569	224	564	405	514	560	503	566			96	563	433	202	529	428	508	337	257	440	384	254	154
Mar. 20------	552	550		480	65	284	538	292	284	217	371	367	328	515	378	313	145	525	326	454	527	455	534			468	507	259	204	532	297	500	533	424	342	422	290	129
Mar. 21------	449	333		472	433	503	497	297	212	73	234	68	292	506	59	306	328	56	91	75	66	49	80			454	163	88	54	253	123	454	549	244	450	414	350	230
Mar. 22------	630	615		435	313	166	535	433	40	410	204	55	293	162	8	79	550	338	93	347	387	356	359			180	410	28	119	495	53	320	546	237	508	239	326	170
Mar. 23------	672	569		427	580	547	512	188	130	441	188	53	556	544	18	114	460	71	74	66	54	20	78			313	58	130	227	49	106	128	484	442	291	365	243	258
Mar. 24------	616	559		332	476	516	49	254	481	---	103	376	358	97	330	353	519	213	349	129	194	222	120			239	312	116	132	262	271	404	221	288	297	284	297	294
Mar. 25------	687	682		442	556	523	486	355	402	347	313	307	480	215	176	116	242	400	380	324	289	235	294			264	332	381	318	321	474	464	350	222	444	142	217	322
Averages------	603	561		439	394	403	418	300	301	---	234	254	386	312	218	264	353	309	245	273	297	263	290			288	335	205	179	349	250	397	431	302	396	321	282	223
Departures----	-3	-14		+40	+26	+64	-28	-81	-39	---	-136	---	-3	-56	-110	-45	-27	-82	-75	-62	-73	-46	---			-97	---	-79	-150	---	-6	---	---	+36	---	---	+54	---
Mar. 26------	611	631		369	314	224	440	218	252	381	359	276	175	386	381	123	251	553	---	505	577	521	514			385	500	33	43	556	191	537	591	236	203	220	276	330
Mar. 27------	623	620		323	265	116	545	515	295	492	389	270	275	489	68	308	114	40	82	42	50	19	57			448	53	58	419	45	113	75	307	266	246	232	207	197
Mar. 28------	622	548		428	518	565	618	490	479	221	661	270	383	387	263	355	240	54	363	56	89	86	215			526	355	56	107	104	316	445	77	271	552	268	284	304
Mar. 29------	685	615		335	319	255	465	388	127	582	525	188	626	569	239	320	498	496	315	421	523	409	274			555	288	372	581	477	226	249	307	379	455	427	346	320
Mar. 30------	717	698		411	540	518	563	535	612	576	653	582	556	379	617	592	573	582	511	438	634	536	564			415	607	406	403	336	547	595	444	60	506	317	371	383
Mar. 31------	451	559		326	619	556	478	402	607	142	657	583	278	487	567	567	531	431	472	331	482	435	533			442	597	186	164	485	422	573	596	313	338	432	414	372
Apr. 1-------	654	596		483	46	279	619	526	164	523	671	322	263	475	305	95	485	537	---	525	600	501	489			191	481	77	485	569	31	---	613	186	436	191	428	352
Averages------	623	610		382	374	359	532	439	362	417	559	356	365	453	348	337	385	385	349	331	422	358	378			423	412	170	315	367	264	412	419	244	391	298	332	323
Departures----	+20	-11		-31	-10	+2	+52	-41	+5	+21	+89	---	-53	+30	+16	-23	+5	-4	+1	-43	+28	-7	---			+45	---	-122	-40	+38	-39	---	---	-64	---	---	+44	---

Accumulated Departures January 1 to April 1, 1950

	+154	+441		-777	---	+630	+3528	+210	-1120	---	+273	---	-546	+49	+315	-840	+98	-1589	-343	-1834	-714	+91	---			+301	---	-1652	-665	---	+49	---	---	-413	---	---	+2037	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Publication of Oak Ridge, Tenn., is being resumed beginning with this issue. A description of instrumental equipment and exposure is contained in the Feb. 1949 issue of the Monthly Weather Review.

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, March 1950

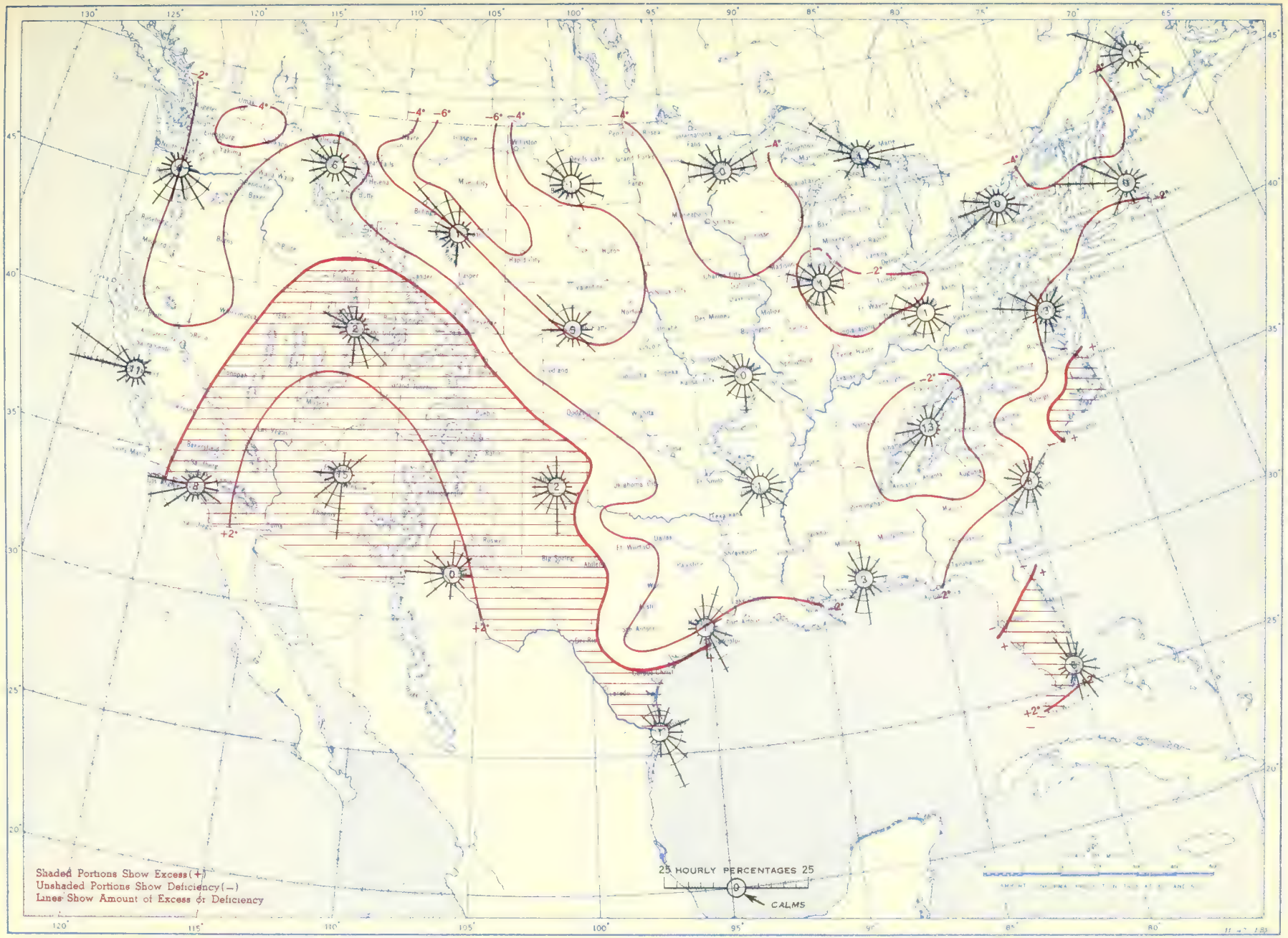
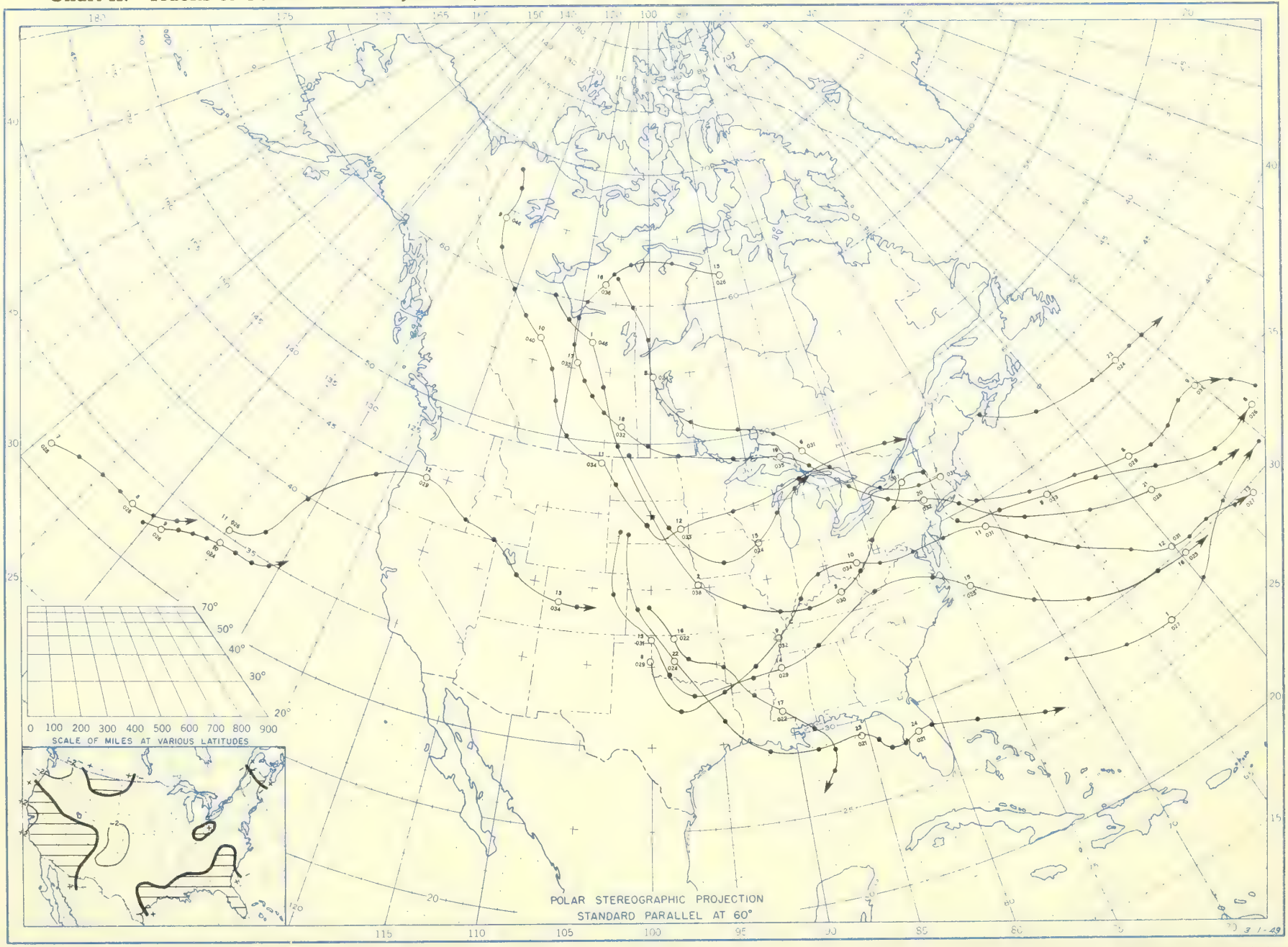


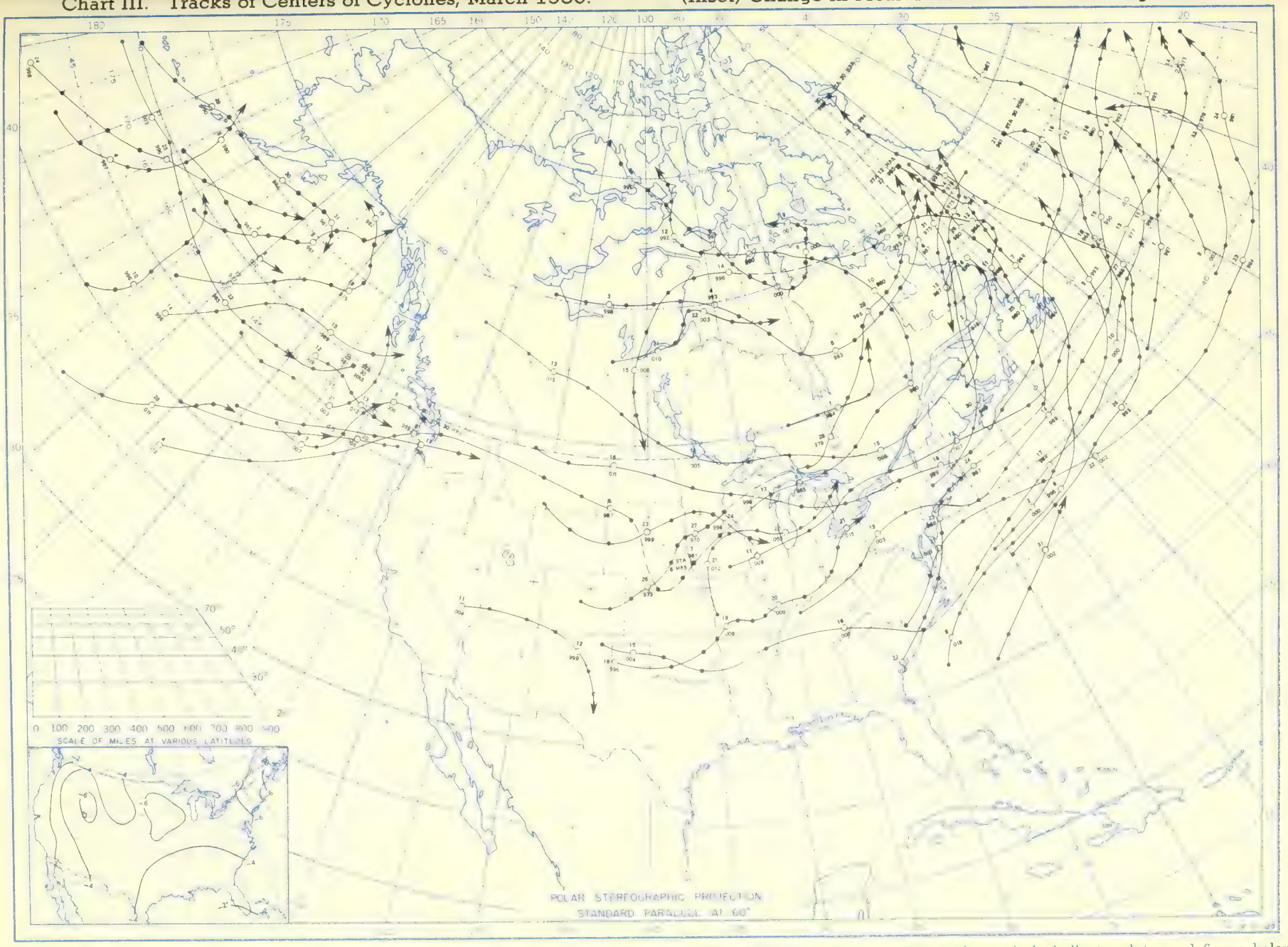
Chart II. Tracks of Centers of Anticyclones, March 1950. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure

Chart III. Tracks of Centers of Cyclones, March 1950. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time) Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, March 1950

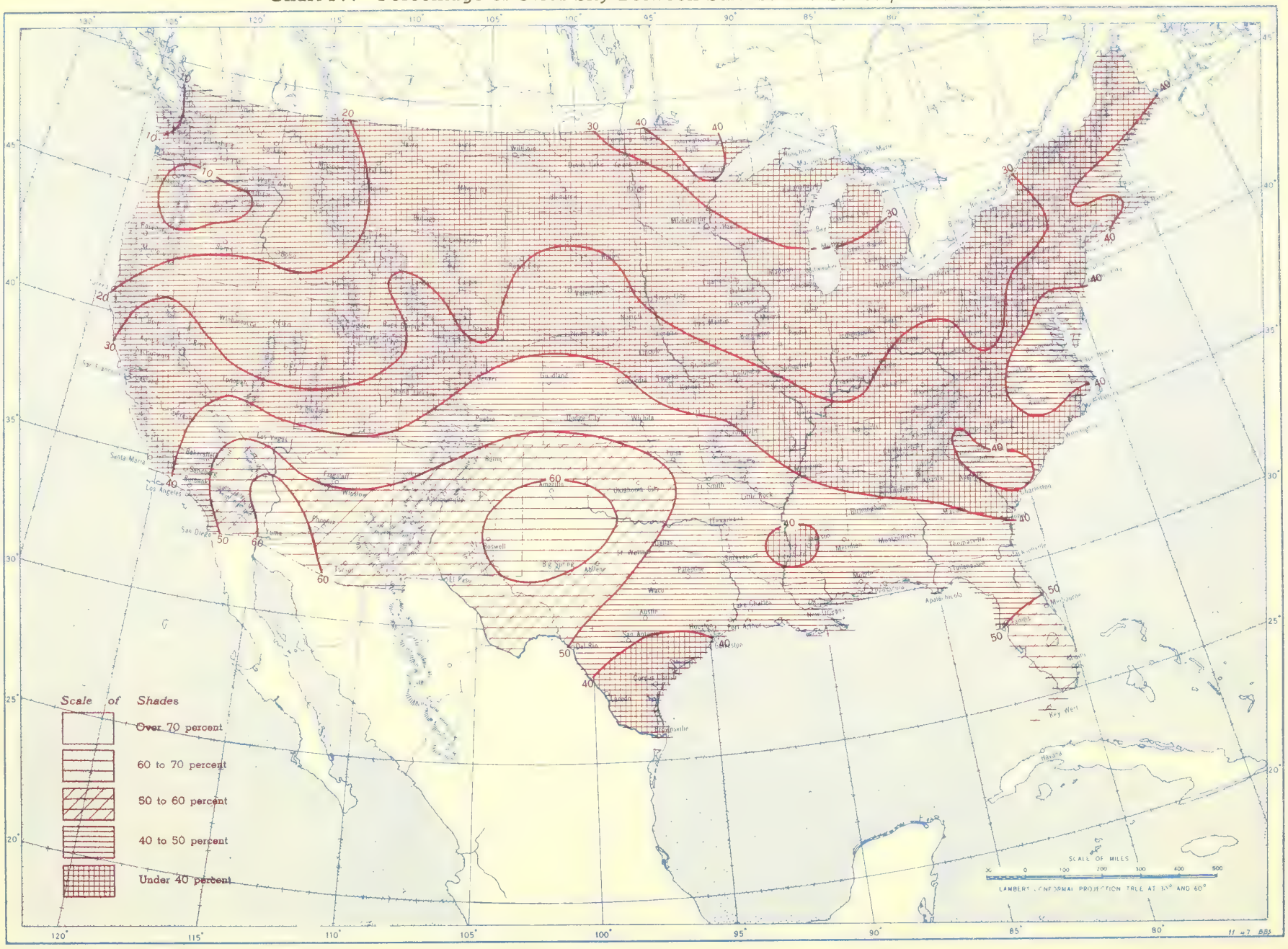


Chart V. Total Precipitation, Inches, March 1950. (Inset) Departure of Precipitation from Normal

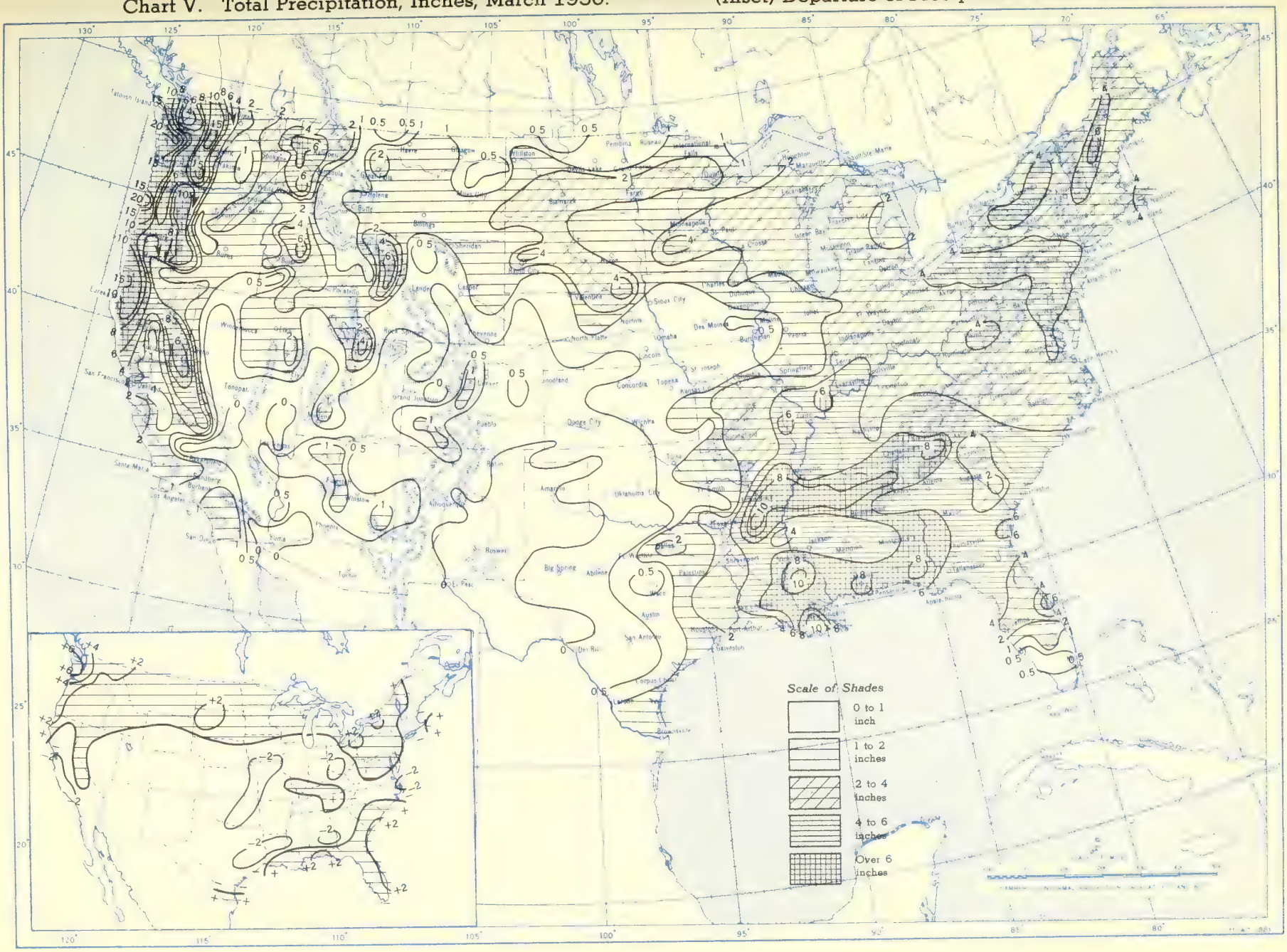
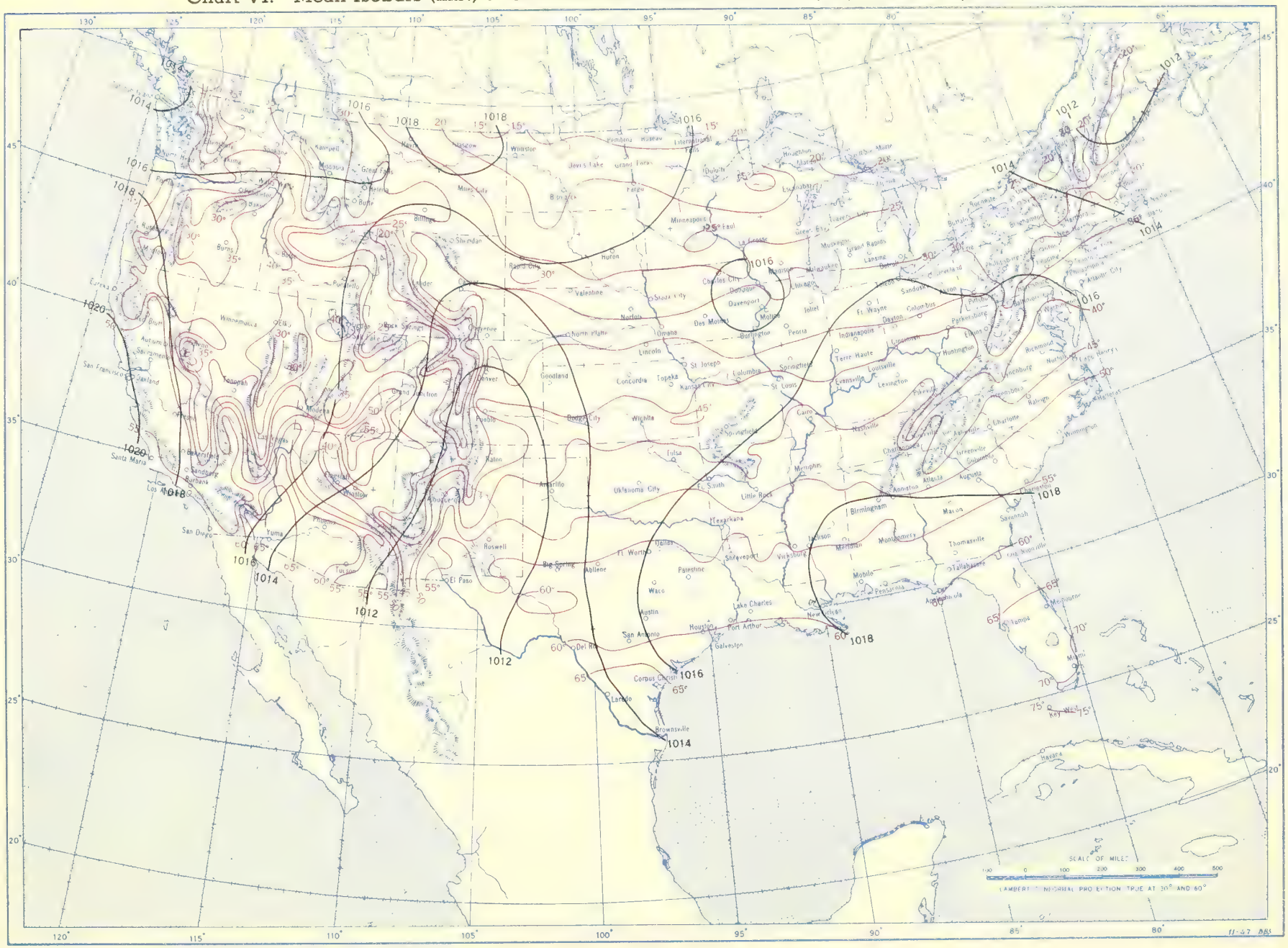
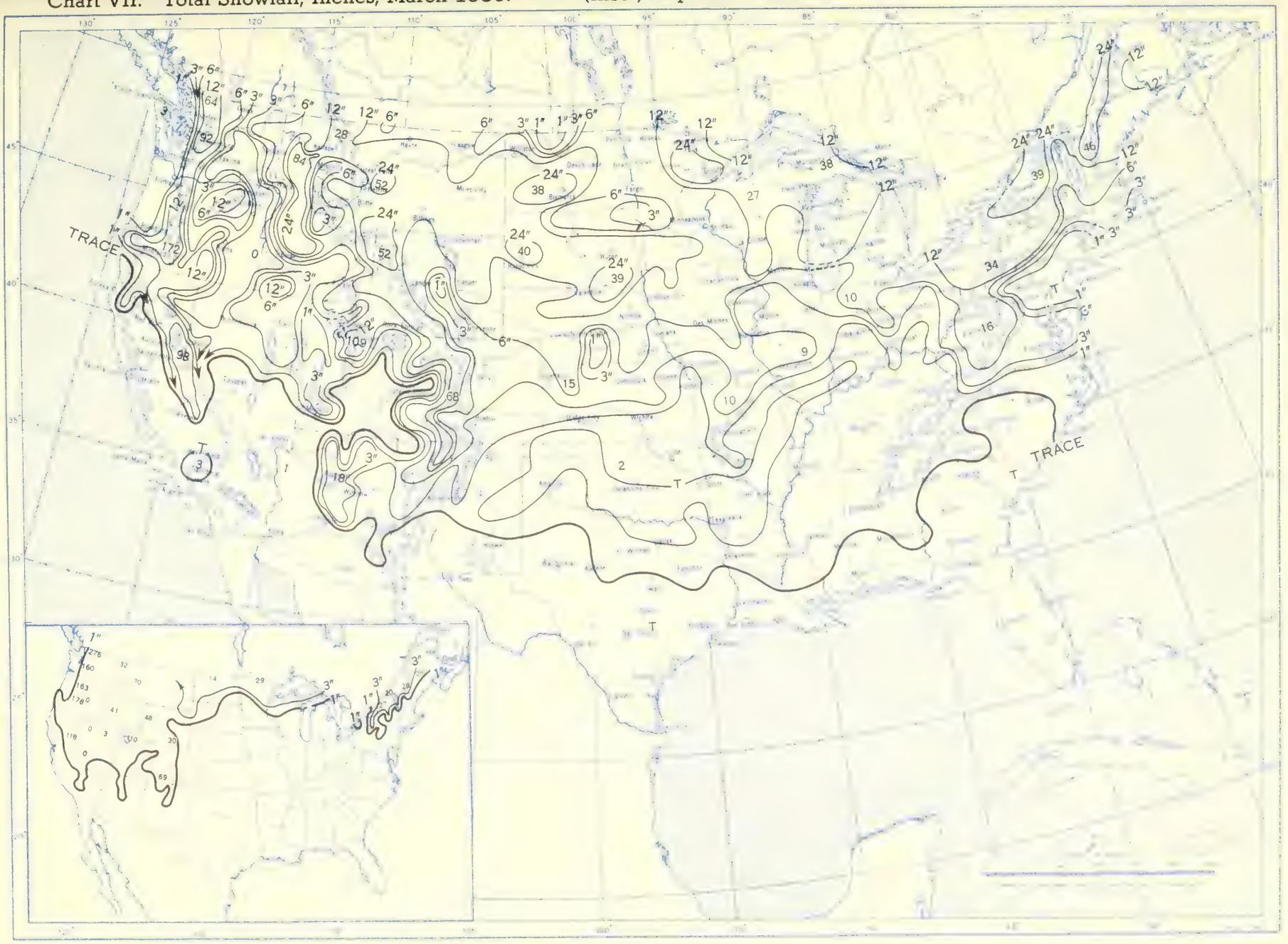


Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., March 1950

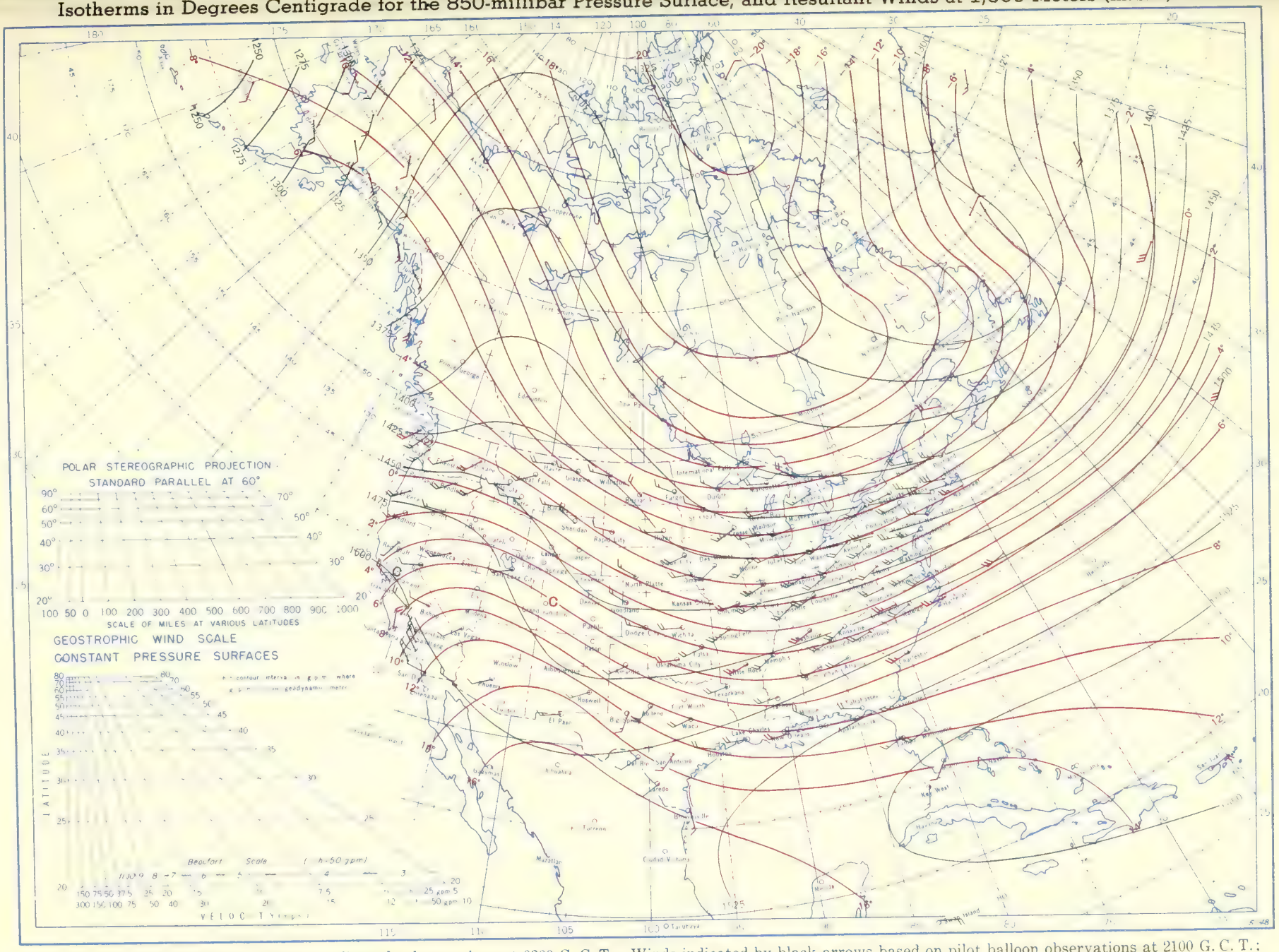


Snow on the Ground at 7:30 a.m., March 28, 1950

Chart VII. Total Snowfall, Inches, March 1950. (Inset) Depth of Snow on the Ground at 7:30 a. m., March 28, 1950

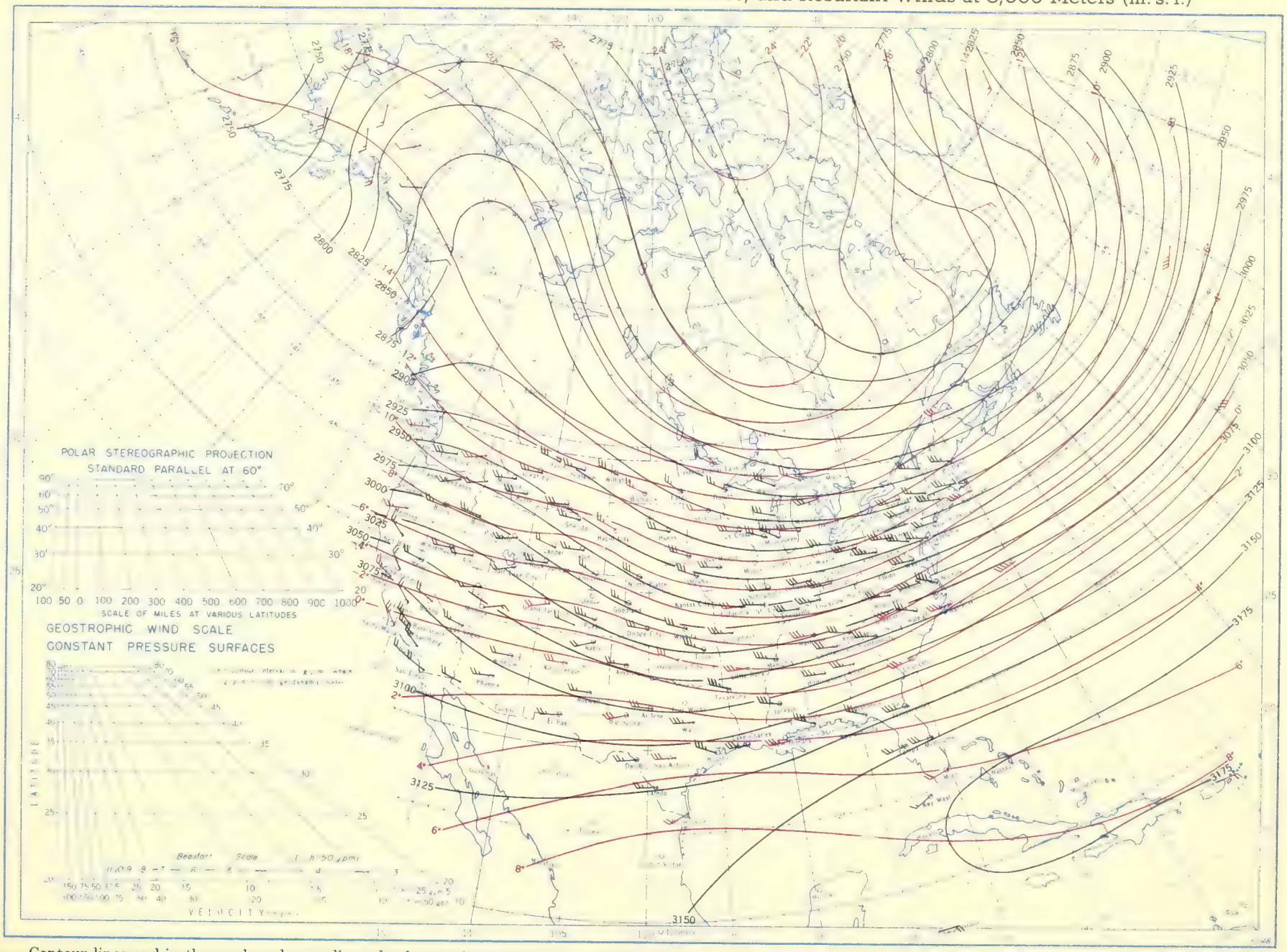


Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.: those indicated by red arrows based on rawins taken at 0300 G. C. T.

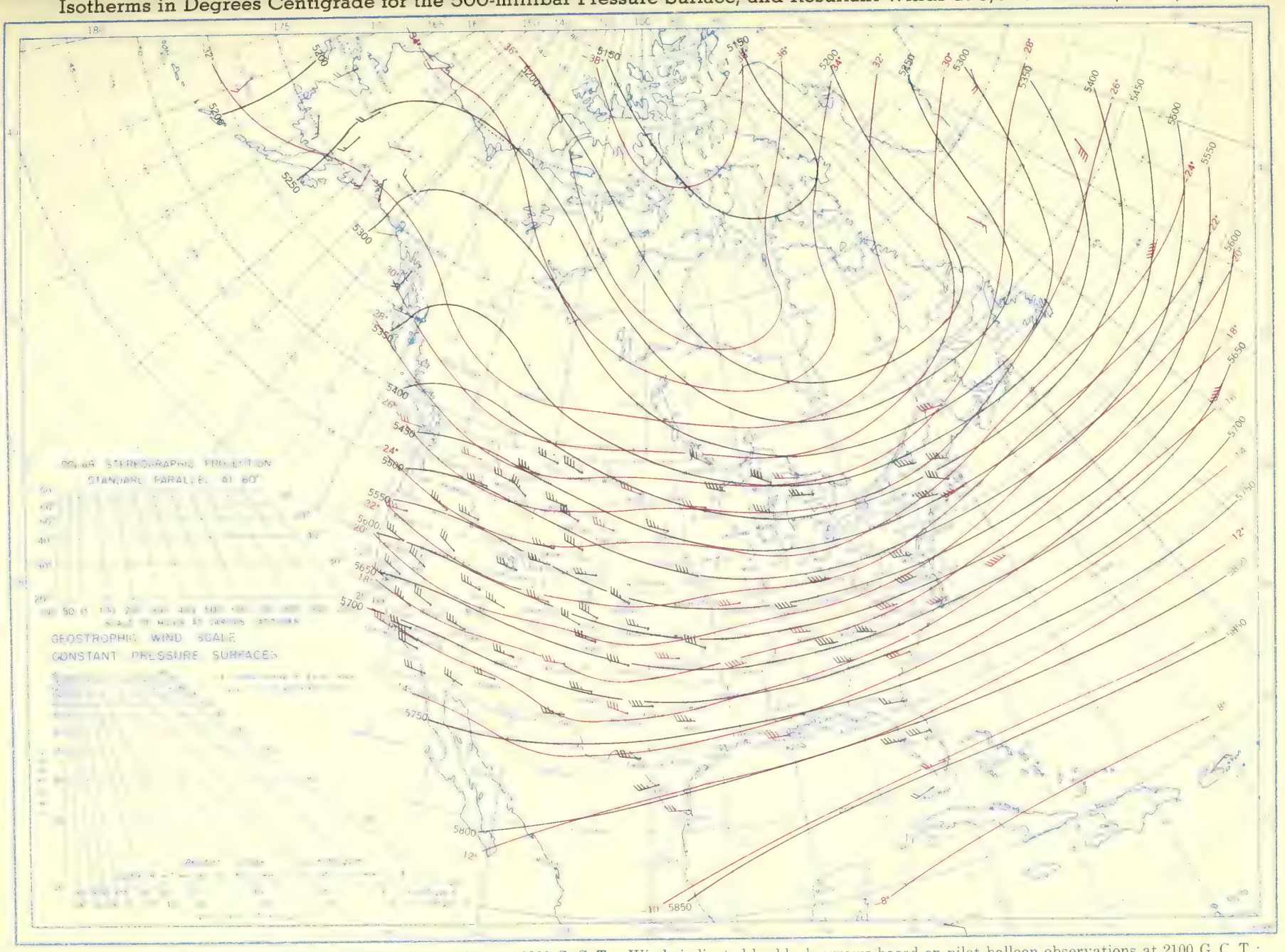
Chart IX, March 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.;

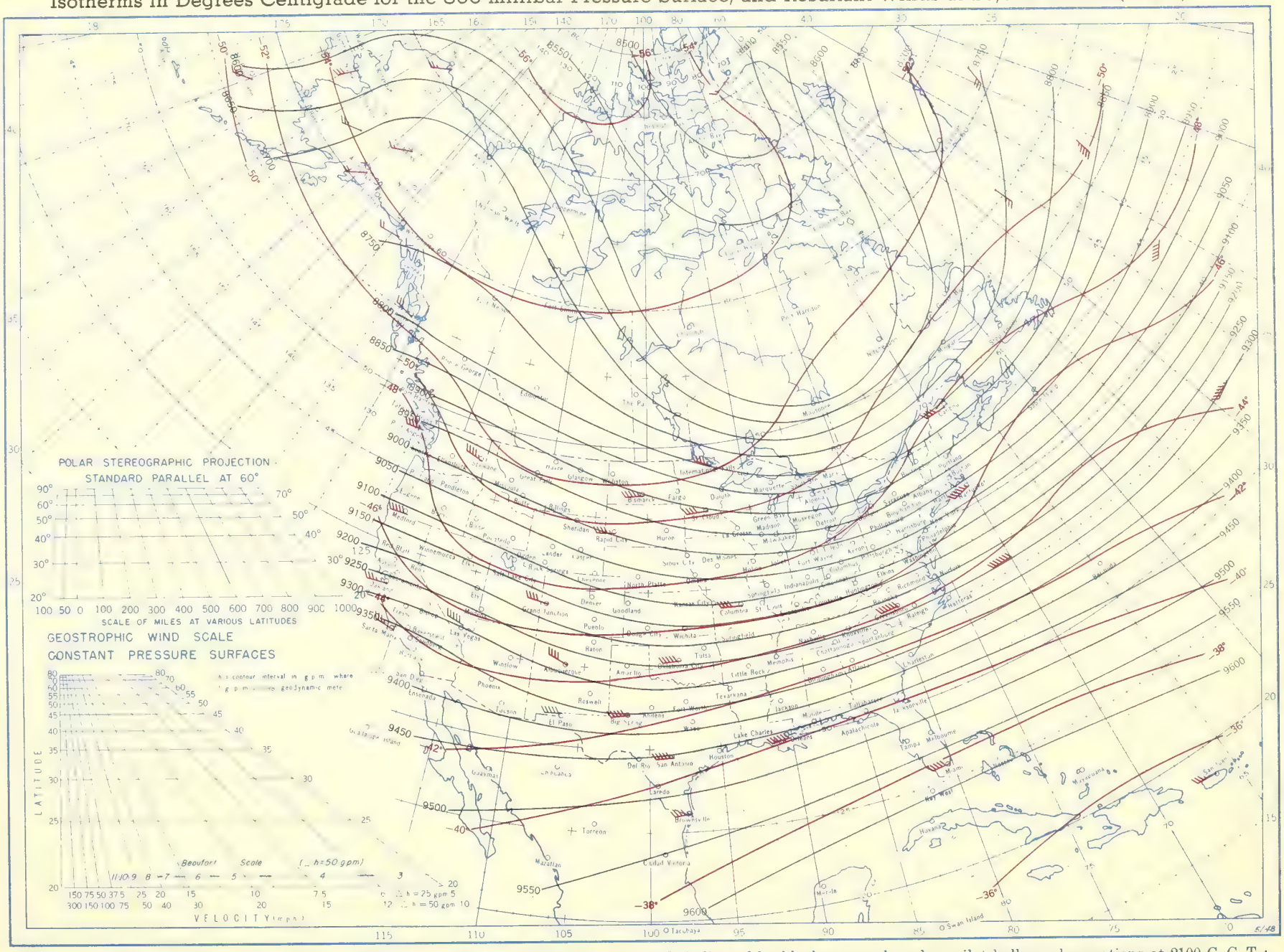
Chart X, March 1950. Contour Lines of Mean Pressure Height, and Resultant Winds at 5,000 Meters (m. s. l.)

Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, March 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.;

U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

[illegible]

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

APRIL 1950
Volume I No. 4



WASHINGTON: 1950

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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA
NATIONAL SUMMARY

APRIL 1950

Volume I No. 4

GENERAL SUMMARY OF WEATHER CONDITIONS

The weighted average temperature for the United States was 50.1° which was 2.4° below the 58-year mean, making this the coldest April since 1928 and the 5th coldest since 1893. Monthly departures from normal, like March, were above only in the Southwest. The greatest plus departures of over 6° occurred in southern Arizona, while the greatest minus departures of 8° to 10° occurred in extreme north-central areas. This was the coldest April on record in West Virginia and Wisconsin, the second coldest in Michigan and Florida, and one of the coldest on record in nearly all States east of the Rocky Mountains.

Precipitation averaged 2.03 inches, or 0.44 of an inch less than the 58-year mean of 2.47 inches. Monthly totals were above normal in the Lake Region, the Ohio Valley, along the central and east Gulf Coast, in much of the Florida Peninsula, and along the Washington Coast, but below normal elsewhere with the least percentage of normal in the Southwest where many stations received only a trace or none. It was the second driest April on record in Kansas, and the period October 1949 through April 1950 was the driest on record in New Mexico.

Due to the unseasonably cold weather much of the total precipitation in northern areas was in the form of snow, and most stations from the Great Lakes westward reported monthly totals ranging from 200 to 300 percent of normal. North Dakota's average snowfall of 9.5 inches was the greatest on record for April, and Montana's April average of 8.4 was the 4th largest in 56 years. The snowpack in the northwestern mountains which continued unusually heavy brightened prospects for a plentiful supply of irrigation water. During the closing days of the month a number of stations in north-central areas received their heaviest late-season snowfall on record. Light to severe icing also occurred on several days in this area.

During the first decade temperatures averaged a few degrees below normal except in the Southwest, and precipitation totals were generally under 1/2 inch except in the Lake Region, Ohio Valley, and along the central and east Gulf Coast where totals ranged from 1 to over 2 inches, most of which fell in the first 5 days. Heavy snows in north-central areas increased the depth of snow on the ground by 17 inches at Grand Marais, Mich. on the 4th and raised the depth of Bergland, Mich. on the 5th to 39 inches. At the same time southerly winds in the East brought maximum temperatures in the 80's as far north as New York on the 4th setting new high temperature records for the date at many stations.

By the 6th cold air, centered over the Great Plains, had overspread the entire country, reducing temperatures to much below-normal levels in the eastern half. A minimum temperature of -13° was registered at Grand Marais, Mich. on the 6th, and on the morning of the 7th frost damaged tender crops as far south as central Florida and minima ranged from 38° to 44° in the Everglade Region. Temperatures continued below normal in most of the East during the remainder of the first decade, but rose rapidly in the lower Great Plains after the 6th reaching 100° on a few afternoons in extreme southern Texas and the high 80's as far north as Kansas. Light to moderate precipitation was rather frequent in the Pacific States after the 5th, and at times spread into the northern Rockies falling as snow in the higher mountains.

On the 8th through the 10th glaze spread from Minnesota and Iowa eastward through the Lake Region. It was severe in northeastern Iowa and northern Illinois, with total damage for these two States amounting to about $2,500,000. The heaviest damage in Iowa occurred at Clinton which was isolated by ice ranging from 1 to 1 1/2 inches in thickness.

On the 7th a wave disturbance off the central Atlantic Coast developed great storm intensity causing the loss of 18 men and 2 sloops off Nantucket. Four to 8 inches of snow fell at Cape Cod.

For the week ending the 18th temperatures again averaged below normal east of the Rocky Mountains, but precipitation totaled more than 0.5 of an inch only in western Washington, Texas, the central Gulf Region and at a few stations in western Kansas and Oklahoma.

From the 9th through the 11th a low pressure area from the Southwest gained considerable intensity over the Great Plains as it moved northeastward across the Lake Region. Strong winds, 40 to 70 m.p.h. in Colorado, caused dust storms in the southern portion of the western Great Plains. In extreme north-central areas widespread glaze was followed by light to locally heavy winter-like snowstorms.

With the passing of this low, cold Canadian air overspread the entire area east of the Rockies except a few extreme southern areas. Many new low temperature records for the 12th and 13th and for so late in the season were set in north-central areas and the East. On the 15th and 16th minimum temperatures fell to the middle 30's in the interior of northern and central Florida. Thundershowers, associated with frontal activity in the lower Great Plains during the latter part of the week, furnished adequate moisture to much of this region but not enough for small grains in the Texas High Plains, western Oklahoma, and southwestern Kansas.

No unusual weather occurred from the 18th to the 23d, but from the 23d to the 27th a Low moved across the Great Plains and Lake Region causing general precipitation from the Mississippi Valley eastward. Thunderstorms brought 1 to over 4 inches of rain to eastern Iowa, southern Wisconsin,

northern Illinois, and southern Michigan, and strong winds caused dust storms in the western Great Plains. General snowfall in extreme north-central areas was locally the heaviest on record for so late in the season. Highways were blocked in many sections from North Dakota to northern Michigan by up to 10 inches or more of heavily drifted snow. Two to 3 inches of snow fell in southern Michigan. Near blizzard conditions in the Duluth, Minn. area on the 25th delayed traffic and forced some schools to close.

Cold air which followed this Low brought freezing temperatures into the Rocky Mountain States on the 24th and 25th which caused considerable damage to crops in interior regions west of the Continental Divide. By the 25th cold air had overspread most of the country, and continued to flow into central regions until the end of the month. Daily temperatures averaged as much as 25° to 30° below normal in north-central areas during the closing days, and many stations recorded new low records for particular dates and for so late in the season. Light to heavy snows fell in the northern interior, blocking many roads and causing the loss of some livestock. On the 29th, 10 to 12 inches of snow fell in many places in Wyoming and up to 17 inches in South Dakota.

Record floods in southwestern North Dakota and in the valley of the Red River of the North caused total losses estimated at many millions of dollars. The Red River remained above flood stage most of the month.

Generally cold, wet weather over most of the Corn and Cotton Belts caused much delay in planting these crops and prevented satisfactory germination. Cotton planting was also slow in many southeastern areas due to dryness, preventing adequate soil preparation. The period of below-normal precipitation which began in the western portion of the lower Great Plains in the autumn of 1949 continued during April causing further deterioration of winter wheat in that area. In the extreme north no field work was possible during the entire month due to snow and freezes.

CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

APRIL 1950

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	59.9	-3.5	Belle Mina 2N	90	24	Valley Head	24	15	3.63	-1.00	Highland Home	9.62	Talladega	1.0
Arizona	61.2	+3.3	2 stations	104	21	Alpine	5	10	.04	-.62	Bowie Junction	.57	105 stations	.0
Arkansas	58.2	-3.4	Paris	91	22	2 stations	20	14	3.29	-1.65	Crossett	6.34	Batesville L.&.	1.2
California	58.8	+2.0	2 stations	108	†21	Twin Lakes	-4	14	1.35	-.20	Snow Lab. Cen. Sierra	7.38	21 stations	.0
Colorado	44.6	+.7	Eads	98	21	Fraser	-14	5	1.22	-.58	Hoyt	4.59	Manassa	T
Florida	66.3	-3.7	2 stations	95	†27	2 stations	30	†7	3.14	+.13	Mt. Pleasant 2W	9.64	2 stations	.0
Georgia	60.6	-3.5	do	93	†28	Blairsville Exp. Sta.	20	7	2.18	-1.64	Cairo	6.99	Lincolnton	.3
Idaho	42.9	-2.3	Glenns Ferry	85	20	2 stations	-3	4	.96	-.41	Roland W. Portal	4.09	2 stations	.0
Illinois	47.2	-5.3	E. St. Louis	90	23	Stockton	14	13	5.17	+2.58	Ottawa	9.67	White Hall 1E	2.5
Indiana	46.3	-5.6	Evansville	86	24	Richmond Water W.	16	13	5.08	+1.45	Angola	8.28	Whitestown	2.6
Iowa	42.6	-6.3	Glenwood 2E	94	23	2 stations	10	†6	2.76	+.15	Davenport WB City	7.93	Le Mars	.5
Kansas	51.9	-2.6	2 stations	98	22	do	10	13	1.10	-1.45	Mound City	4.35	Cimarron	.1
Kentucky	52.3	-3.9	Pikeville	91	30	Farmers	17	7	2.97	-1.01	Henderson	5.77	Williamsburg	1.1
Louisiana	63.8	-3.3	Hammond	90	25	Tallulah Delta	28	15	5.40	+.68	Schriever	10.84	Covington	2.4
Maryland-Delaware	50.1	-2.2	Riverdale, Md.	85	19	2 stations	10	14	1.75	-1.69	Sines Deep Creek	3.84	Beltsville Plt.Ind. #3	.8
Michigan	36.0	-6.5	Wayne	71	†17	Grand Marais	-13	8	3.97	+1.56	Eau Claire 4NE	10.30	Garnett	1.3
Minnesota	33.2	-9.8	Winona	74	18	Rosa Power Plant	-11	13	2.56	+.45	Pine River Dam	4.56	Moorhead St. T. Coll.	.5
Mississippi	61.1	-3.5	Houston	90	23	West Point Exp. Sta.	20	7	3.33	-1.54	Monticello	6.73	Booneville	1.4
Missouri	51.5	-3.9	St. Joseph	92	23	Maryville	15	13	3.67	-.37	Cape Girardeau	8.54	Kidder	.6
Montana	39.1	-4.2	Harlowton	78	13	Summit	-11	4	1.18	+.06	Kings Hill	3.94	Monida	.1
Nebraska	44.6	-4.8	Culbertson	97	22	Sidney CAA	4	4	1.20	-1.20	Harrison	2.47	Arthur	.2
Nevada	49.8	+.6	Overton	101	22	Marlette Lake	-2	14	.51	-.28	Jarbidge	3.12	7 stations	.0
New England	41.6	-2.1	5 stations	80	†4	West Burke, Vt.	0	1	2.96	-.38	McIndoe Falls, Vt.	5.71	Lemington, 3NE, Vt.	.9
New Jersey	47.8	-2.0	Bridgeton	85	20	Layton 3NW	15	1	2.18	-1.38	Phillipsburg	3.62	Elizabethport	1.6
New Mexico	54.5	+2.2	2 stations	96	22	Gavilan	2	4	.25	-.61	Hobbs CAA	1.50	27 stations	.0
New York	41.1	-3.2	do	82	†4	Indian Lake	2	7	2.12	-.90	Little Falls City	4.52	Mt. Morris	.7
North Carolina	57.0	-1.1	Greenville #2	95	25	Mt. Mitchell	8	14	1.53	-2.02	Wilson	5.00	Elizabethtown Lock#2	.1
North Dakota	32.6	-8.9	Drake	83	18	Langdon E. Farm	-9	12	1.38	-.04	Minot CAA	3.36	Edgeley E. Farm	.4
Ohio	45.5	-4.3	Ironton	85	†10	2 stations	9	14	4.02	+.78	Montpelier	7.75	Chesapeake CAA	.9
Oklahoma	59.7	-.8	Beaver	102	23	Hulah Dam	20	8	1.76	-1.72	Watts	6.23	Beaver	.0
Oregon	45.3	-2.6	Oakridge RS	88	19	Fremont	5	24	1.73	-.33	Nehalem	8.64	Fremont	.0
Pennsylvania	44.5	-4.1	Hewitt 2S	85	4	Kane 1NNE	6	14	2.57	-.87	Mercer Hiway Shed	5.36	Austinburg 2W	.1
South Carolina	60.2	-2.2	Darlington	92	30	Caesar's Head	20	14	1.52	-1.73	Marion 3W	4.77	McCormick 9E	.2
South Dakota	38.2	-7.8	Tyndal	84	22	Deerfield Dam	-7	30	1.28	-.79	Deadwood	3.15	Vivian	.1
Tennessee	55.0	-3.8	3 stations	88	†24	2 stations	17	14	2.16	-2.17	Bolivar 2NE	3.99	Chattanooga WB City	.9
Texas	64.7	-1.4	Riogrande City	107	30	Miami	21	5	2.77	-.14	Beaumont	12.82	2 stations	T
Utah	47.9	+.9	3 stations	93	21	Silver Lake Brighton	-1	4	.61	-.63	Silver Lake Brighton	3.37	4 stations	.0
Virginia	52.6	-2.0	Farmville	92	24	Meadows	7	14	1.54	-1.71	Norfolk WB City	3.55	Luray	.5
Washington	45.3	-3.3	Wawawai	84	20	Bumping Lake	5	4	2.48	+.09	Clearwater	15.80	White Swan	.1
West Virginia	48.7	-3.2	4 stations	90	†29	Pickens #1	2	7	2.14	-1.37	Pickens #1	5.68	Bluestone Dam	.6
Wisconsin	36.0	-6.9	Kenosha	78	22	Land O'Lakes	-12	8	3.24	+.77	Kenosha	5.26	Owen Co. Asylum	1.8
Wyoming	39.3	-1.0	Spencer 10NE	89	22	Lake Yellowstone	-11	5	1.61	-.04	T-Cross Ranch	4.29	Kane	.0
Hawaii	70.2	-.5	Puunene AP	92	†7	Haleakala RS	38	2	15.38	+7.76	Kukui	76.00	Waiawa	.8
Puerto Rico	73.0	-1.4	Coloso	94	†19	Garzas Dam	51	4	5.52	+1.80	Rio Blanco(1800 ft.)	20.54	Aguirre	1.1

† Other dates also

CLIMATOLOGICAL DATA

Table 2

APRIL 1950

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F or above	Temperature: No. of days: Min. 32° F or below	Average dew point	Average relative humidity*	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: 01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths: sunrise to sunset	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In.	In.	In.			In.	In.	M p. h.		M p. h.			0–3	4–7	8–10	0–10	%
ALABAMA																																
Anniston	599	996.3	1018.7	71	44	57.7	----	85	27	29	7	0	6	45	--	1.99	----	.94	6	3	0.0	0	7.0	NW	--	---	--	--	--	--	----	--
Birmingham	610	995.9	1018.5	72	47	59.1	-2.6	84	23	27	7	0	4	43	64	1.97	-2.84	.71	9	4	0	0	8.4	S	34	NW	4	10	10	10	5.1	74
Mobile	10	1010.8	1018.9	72	55	63.4	-2.9	83	29	38	7	0	0	52	73	7.63	+3.00	3.26	10	5	T	T	11.3	S	49	SE	18	12	11	7	5.0	60
Montgomery	201	1011.2	1018.4	73	51	61.9	-3.4	84	27	37	6	0	0	47	65	4.04	-.26	1.38	9	6	T	T	7.2	S	30	W	25	11	11	8	4.5	71
ARIZONA																																
Flagstaff	6993	786.0	1015.1	63	29	46.2	----	74	20	18	10	0	22	22	43	.28	-----	.22	3	0	0.5	T	8.9	S	--	---	--	18	6	6	3.7	--
Payson	4999	848.0	1012.7	75	41	57.5	----	87	21	24	10	0	3	28	35	.02	-----	.02	1	0	0	0	5.3	SW	--	---	--	19	4	7	3.4	--
Phoenix	1083	971.2	1009.9	88	58	72.9	+5.9	100	20	45	10	12	0	35	28	T	-.40	T	0	0	0	0	4.7	E	27	W	9	21	4	5	2.7	94
Prescott	5014	845.2	1012.0	74	40	56.8	----	85	20	24	10	0	5	24	32	.08	-----	.08	2	0	0	0	10.3	SSW	35	SW	8	18	9	3	3.0	94
Tucson	2585	923.5	1010.5	86	53	69.2	+4.8	95	21	40	10	5	0	25	21	T	-.33	T	0	0	0	0	7.0	SSE	26	S	22	18	8	4	2.9	93
Winslow	4880	849.6	1010.4	74	39	56.7	+3.5	87	21	27	10	0	4	20	27	T	-.49	T	0	0	0	0	11.1	SW	--	---	--	17	9	4	3.2	--
Yuma	203	1005.1	1010.0	91	60	75.1	----	103	20	49	10	20	0	37	29	T	----	T	0	0	0	0	6.6	SSE	38	W	9	24	4	2	1.7	94
ARKANSAS																																
Fort Smith	458	999.7	1016.3	71	47	59.1	-2.7	86	23	29	6	0	1	42	59	2.48	-1.46	1.11	8	7	T	T	8.8	NE	38	SW	10	7	10	13	5.8	77
Little Rock	257	1004.1	1018.7	71	50	60.6	-1.5	83	23	35	14	0	0	46	64	2.75	-2.44	1.41	10	5	0	0	9.4	S	32	S	4	9	8	13	5.6	62
Texarkana	361	1003.7	1016.8	72	52	61.8	-2.9	83	3	34	6	0	0	48	67	4.15	-1.27	1.51	8	3	0	0	11.4	SSE	--	---	--	8	8	14	6.3	--
CALIFORNIA																																
Bakersfield	489	997.0	1015.0	80	51	65.5	+2.7	96	21	39	14	3	0	42	46	.47	-.05	.47	2	0	0	0	5.8	WNW	--	---	--	24	3	3	1.8	--
Beaumont	2589	924.1	1014.4	73	44	58.5	----	93	19	31	10	2	1	42	62	1.14	-----	.86	6	0	T	0	6.1	WNW	--	---	--	15	10	5	3.7	--
Bishop	4108	871.7	1011.5	78	40	58.9	----	92	21	25	10	2	6	--	--	.10	-----	.10	1	0	T	T	----	---	--	---	--	20	7	3	2.7	--
Blue Canyon	5280	838.1	1014.8	58	39	48.2	----	74	19	25	14	0	9	29	53	6.41	-----	2.22	8	1	37.6	25	8.7	ENE	--	---	--	15	7	8	4.3	--
Burbank	699	988.2	1014.3	73	52	62.4	----	89	2	41	10	0	0	49	66	1.00	-----	.88	3	1	0	0	6.1	S	--	---	--	11	10	9	4.9	--
Eureka	43	1017.6	1020.0	55	43	49.2	-.7	64	11	37	28	0	0	--	--	1.93	-1.40	.70	8	0	F	F	8.7	---	26	N	3	4	13	13	6.7	65
Fresno	331	1003.1	1014.9	78	48	62.9	+2.7	94	20	40	10	3	0	46	57	.82	-.13	.80	3	1	T	T	7.6	NW	34	S	8	21	4	5	2.5	94
Los Angeles	312	1011.2	1014.8	72	54	62.7	+3.3	88	17	43	9	0	0	50	74	.56	-.48	.46	3	1	.2	T	5.4	WSW	26	NW	14	11	9	10	4.9	63
Mt. Shasta	3543	892.7	1016.8	60	33	46.7	+.3	83	19	25	29	0	17	31	59	3.63	+1.01	2.03	5	0	13.6	12	8.9	NW	--	---	--	8	10	12	5.8	--
Oakland	3	1016.6	1017.2	67	45	56.0	+1.3	85	19	39	14	0	0	45	70	1.45	-.07	.90	4	0	0	0	7.0	W	--	---	--	19	4	7	3.6	--
Red Bluff	341	1002.4	1014.9	76	49	62.2	+3.2	92	21	34	9	3	0	35	42	.33	-1.37	.14	6	0	0	0	9.7	NW	32	SE	7	12	11	7	4.9	82
Sacramento	25	1012.9	1015.4	75	49	62.0	+3.9	90	20	42	14	1	0	45	61	1.03	-.48	.68	6	1	0	0	10.1	SW	30	SW	4	18	8	4	3.4	85
Sandberg	4517	861.8	1013.8	63	45	54.0	----	81	19	28	9	0	3	33	49	.46	-----	.46	2	0	.2	T	19.2	WNW	--	---	--	23	5	2	2.2	--
San Diego	19	1012.2	1015.2	68	54	60.7	+1.7	79	17	47	10	0	0	51	73	.28	-.49	.26	4	0	0	0	6.9	WNW	26	W	9	7	10	13	6.1	59
San Francisco	1	1016.3	1016.9	64	49	56.1	+1.1	82	19	45	8	0	0	45	74	.87	-.74	.50	5	0	T	T	13.8	WNW	32	W	27	22	3	5	2.5	89
Santa Catalina	1568	958.0	1014.3	65	52	58.4	----	81	18	44	9	0	0	--	--	.74	-----	.52	3	0	0	0	----	---	--	---	--	14	6	10	4.7	--
Santa Maria	231	1007.8	1016.3	69	45	56.6	----	89	18	38	10	0	0	47	75	.85	-----	.71	3	1	0	0	8.3	WNW	--	---	--	19	7	4	3.5	--
COLORADO																																
Alamosa	7534	769.1	1014.1	63	22	42.4	----	74	22	7	5	0	27	--	--	.08	-----	.08	1	0	0.7	T	----	---	--	---	--	10	18	2	4.5	--
Colorado Springs	6175	MM	1014.1	60	31	45.5	----	77	22	16	4	0	19	24	49	.42	-----	.27	6	2	1.6	1	13.2	S	--	---	--	4	14	12	6.4	--
Denver	5221	833.7	1012.2	62	33	47.7	+1.9	81	22	22	4	0	17	25	49	2.98	+.71	2.13	8	1	9.0	4	9.5	NE	45	SE	14	1	14	15	6.9	61
Grand Junction	4843	857.1	1012.0	66	39	52.6	+.2	82	21	26	4	0	5	24	36	.54	-.29	.41	4	0	T	0	11.6	ESE	46	S	7	11	9	10	5.3	80
Pueblo	4799	853.7	1011.7	67	35	51.0	+1.6	87	22	19	4	0	12	25	43	.45	-.86	.38	5	1	.5	T	8.3	W	45	SW	9	5	14	11	6.2	69
CONNECTICUT																																
Bridgeport	7	1015.2	1016.0	53	37	45.0	----	66	18	26	14	0	7	33	68	2.75	-----	1.20	16	1	3.7	4	9.8	N	29	NE	7	4	10	16	7.2	--
Hartford	15	1009.5	1015.4	53	35	45.5	-1.2	77	18	22	11	0	13	34	68	3.06	-0.30	0.87	13	0	4.7	4	9.1	N	34	S	4	2	11	17	7.8	52
New Haven	6	1011.2	1015.3	53	37	44.7	-0.2	65	18	26	7	0	7	--	--	2.40	-0.82	0.55	14	2	4.9	4	----	---	26	NE	4	3	12	15	7.4	45
DELAWARE																																
Wilmington	73	1013.5	1016.2	59	37	48.3	----	80	4	23	14	0	11	34	62	1.81	-----	0.67	13	4	T	T	8.7	NW	--	---	--	3	10	17	7.1	--
FLORIDA																																
Apalachicola	13	1018.0	-------	71	56	63.5	-3.6	79	28	40	7	0	0	--	--	4.75	+1.95	2.86	7	5	0	0	----	---	32	NW	4	13	11	6	4.5	64
Daytona Beach	33	1017.6	1019.5	77	51	63.7	-4.7	87	27	35	8	0	0	54	79	2.79	+.87	1.95	6	5	0	0	9.4	E	26	WNW	25	13	13	4	4.0	--
Fort Myers	15	1018.6	1019.0	83	54	68.5	-4.3	92	27	39	8	4	0	54	66	.08	-1.81	.07	2	2	0	0	8.8	ESE	--	---	--	18	10	2	2.9	--
Jacksonville	18	1018.0	1019.1	76	56	65.9	-2.8	87	28	38	7	0	0	48	61	2.25	-.13	1.17	6	4	T	T	6.9	SE	48	NE	27	13	10	7	4.4	73
Key West	5	1017.6	1017.8	81	68	74.3	-1.4	87	30	56	7	0	0	62	71	2.33	+1.04	2.26	4	2	0	0	13.2	E	30	NW	5	19	9	2	3.3	85
Lakeland	214	------	-------	79	56	67.4	-4.8	90	27	40	7	2	0	--	--	3.21	+.91	3.07	3	5	0	0	----	---	--	---	--	18	8	4	3.4	--
Melbourne	22	1018.0	1019.3	77	56	66.1	-5.7	89	25	44	7	0	0	57	75	2.10	-.02	1.21	3	5	T	T	9.4	ESE	28	NW	6	16	11	3	3.7	--
Miami	M	1017.3	1018.2	76	64	69.9	-4.0	82	27	44	7	0	0	57	65	2.19	-1.22	1.98	5	4	T	T	9.0	ESE	70	N	26	13	14	3	4.1	84
Orlando	111	1014.9	1019.6	80	54	67.1	-4.0	89	27	40	8	0	0	53	67	4.82	+2.27	2.67	7	5	T	T	9.4	NNW	33	W	27	12	12	6	4.2	--
Pensacola	13	1016.9	1018.9	71	56	63.7	-3.0	80	25	40	7	0	0	57	--	6.42	+2.39	3.36	7	5	0	0	9.3	SSE	26	NW	18	13	5	12	5.2	77
Tallahassee	64	1016.9	1019.4	76	51	68.5	---	86	30	37	16	0	0	49	67	9.35	+5.95	3.84	9	7	T	T	5.7	SE	--	---	--	13	10	7	4.5	--
Tampa	24	1018.0	1019.1	79	56	67.7	-3.2	90	30	42	7	1	0	52	64	2.13	+.12	1.85	2	2	0	0	7.8	N	26	N	6	15	11	4	3.7	78
West Palm Beach	14	1017.6	1018.4	81	61	80.8	----	88	27	47	7	0	0	57	66	2.01	-2.00	1.57	4	3	0	0	8.7	E	--	---	--	15	10	5	4.1	--
GEORGIA																																
Albany	190	1011.9	1019.2	76	50	62.7	-4.5	86	28	34	7	0	0	46	60	2.06	-1.78	.60	6	5	T	T	6.2	SSE	40	NW	6	15	8	7	4.3	--
Atlanta	977	976.3	1017.9	70	47	58.8	-2.3	84	28	30	14	0	3	40	55	1.45	-2.27	.66	8	2	0	0	10.7	NNW	34	NW	5	13	8	9	4.9	68
Athens	798	988.8	------	72	46	58.8	-3.8	89	29	27	14	0	5	--	-	.69	-6.00	.30	7	-	0	0	----	---	--	---	--	13	11	6	4.4	--
Augusta	426	1008.1	1018.1	75	50	62.4	-1.8	90	29	31	7	1	1	40	49	.98	-2.02	.86	5	3	0	0	8.8	SW	--	---	--	10	12	8	4.7	--
Columbus	382	1004.4	1018.8	72	46	59.4	-----	86	28	28	7	0	3	46	67	2.87	-----	1.10	9	6	T	T	6.6	NW	--	---	--	13	8	9	4.7	--
Macon	354	1005.4	1018.1	75	49	62.1	----	89	23	31	7	0	1	43	55	1.40	-----	.51	5	3	0	0	9.5	SSW	29	NW	13	7	10	5	5.0	77
Rome	637	995.3	1018.6	71	42	56.4	-4.2	85	24	28	7	0	6	43	66	1.68	-2.26	.73	9	2	T	T	8.0	N	--	---	--	12	8	10	5.1	--
Savannah	38	1016.3	1018.7	75	51	62.8	-1.5	85	28	34	15	0	0	46	60	3.36	+.79	1.73	4	5	T	T	10.3	SE	58	SW	27	13	12	5	4.5	88
Valdosta	200	1011.5	1019.1	77	49	62.9	-4.8	88	28	34	7	0	0	50	--	2.65	-.93	1.04	6	5	0	0	8.7	SW	--	---	--	15	6	9	4.0	--
IDAHO																																
Boise	2842	919.4	1016.1	60	35	47.6	-1.5	73	20	22	24	0	8	31	53	.55	-.63	.46	8	0	T	T	12.2	WNW	42	W	6	5	12	12	6.4	67
Lewiston	1413	965.5	1017.4	59	37	47.8	-----	70	11	29	4	0	5	33	56	.76	-----	.25	9	1	.3	T	8.3	E	--	---	--	2	7	21	7.9	--
Pocatello	4444	861.5	1015.4	56	32	43.9	-1.0	75	20	18	24	0	15	26	51	.44	-1.03	.20	5	2	.7	T	10.3	WSW	47	SW	23	7	9	14	6.2	65
ILLINOIS																																
Cairo	314	1004.1	1016.9	65	47	56.2	-2.9	82	23	32	13	0	2	--	--	4.40	+.68	2.03	13	6	T	T	10.2	---	36	SW	10	9	9	12	5.6	71
Chicago	618	992.6	1015.9	49	34	41.5	-5.4	76	22	21	13	0	12	32	74	4.67	+2.13	1.46	16	6	1.0	T	12.4	W	45	N	23	1	5	25	8.2	38
Joliet	580	993.2	1015.8	51	32	41.4	-5.3	77	22	21	13	0	16	34	77	7.13	+4.20	2.76	17	5	.3	0	13.2	SW	--	---	--	4	5	21	7.8	--
Moline	589	993.9	1016.7	53	34	43.6	-5.2	82	22	21	13	0	12	31	67	5.87	+3.18	2.76	16	7	.4	T	13.2	W	45	W	10	5	9	16	6.7	45
Peoria	659	993.6	1016.2	54	35	44.3	-5.6	80	22	20	13	0	10	33	69	8.49	+5.11	5.06	13	5	T	0	14.3	WNW	55	W	11	6	9	15	6.8	50
Springfield	598	994.2	1016.5	57	39	48.2	-4.5	83	23	24	13	0	4	36	72	2.83	-.68	1.39	12	6	T	T	15.9	NW	52	W	23	7	7	16	5.8	47
INDIANA																																
Evansville	385	1001.7	1017.5	62	40	51.1	-3.8	82	24	24	14	0	7	40	68	5.91	+2.01	2.47	13	6	T	T	10.3	SSW	39	W	20	7	7	16	6.5	65
Fort Wayne	801	984.4	1016.3	52	33	42.5	-6.2	72	10	21	13	0	15	35	76	4.88	+1.81	1.41	16	5	2.5	2	9.9	SW	33	S	1	4	4	22	7.9	46
Indianapolis	796	986.8	1016.6	57	39	47.5	-4.6	77	23	20	13	0	8	36	73	3.04	+.58	.87	13	2	T	T	13.6	W	49	W	11	5	4	21	7.5	43
South Bend	768	986.8	1015.7	50	32	41.0	-6.8	71	22	18	13	0	17	34	80	5.32	+2.27	1.46	20	4	5.7	2	13.0	NW	42	SW	11	3	4	23	8.2	--
Terre Haute	585	995.6	1017.1	57	37	46.8	-5.7	78	23	19	13	0	10	37	71	3.34	-.32	.90	14	7	.4	T	12.8	SSW	39	S	10	5	7	14	7.2	47
IOWA																																
Burlington	605	991.2	1017.1	55	34	44.6	-6.8	82	22	18	13	0	11	33	69	6.24	+3.04	4.36	11	7	T	T	12.9	NW	56	N	23	6	8	16	7.0	53
Charles City	1013	979.3	1016.9	48	31	39.6	-6.8	72	17	20	13	0	17	--	--	2.95	+.43	.87	12	4	.1	T	8.6	---	24	NW	11	9	6	15	6.2	49
Davenport	579	993.9	-------	53	35	43.9	-6.0	81	22	21	13	0	10	--	--	7.93	+5.24	3.56	16	9	.8	1	----	---	--	---	--	--	--	--	---	--
Des Moines	800	984.8	1016.4	54	35	44.2	-5.9	86	22	20	13	0	12	31	67	1.63	-1.28	.43	9	4	3.3	3	12.5	NW	40	NW	10	5	9	16	7.0	45

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No of days: Max. 90° F or above	Temperature: No of days: Min. 32° F or below	Average dew point	Average relative humidity[a]	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb	Mb	°F	°F	°F	°F	°F		°F				°F	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0—3	4—7	8—10	0—10	%
Dubuque	641	990.2	1015.9	50	33	41.7	-6.9	77	22	21	13	0	15	--	—	4.31	+1.46	2.02	11	4	T	T	7.5	---	25	NW	11	5	5	20	7.4	51
Sioux City	1097	974.6	1016.4	54	31	42.8	-4.4	87	22	15	13	0	19	28	62	.83	-1.87	.74	6	2	.6	T	11.8	NW	47	N	10	4	11	15	7.0	68
KANSAS																																
Concordia	1375	965.8	1016.3	61	38	49.5	-4.0	88	22	19	13	0	10	--	--	1.22	-1.14	.59	5	3	2.4	2	9.5	---	36	NW	10	9	12	9	5.3	61
Dodge City	2594	926.2	1013.9	65	39	51.7	-1.9	91	22	21	13	2	11	31	54	.32	-1.62	.26	5	1	.1	T	15.0	S	59	NW	10	13	9	8	4.8	71
Goodland	3645	888.6	1014.3	62	30	45.9	-3.9	92	22	18	13	1	20	27	57	1.00	-.83	.66	5	1	.6	0	12.7	SE	45	NW	10	8	12	10	6.0	--
Topeka	926	983.7	1016.2	62	38	50.3	----	90	23	21	13	2	10	35	61	2.03	-----	.87	8	4	.8	T	13.7	SSW	43	NW	10	5	15	10	6.2	56
Wichita	1372	966.1	1014.8	64	41	52.6	-3.8	88	22	21	13	0	6	34	56	.88	-2.03	.49	6	1	T	T	17.0	S	53	NW	10	10	9	11	5.8	63
KENTUCKY																																
Lexington	978	981.0	1017.6	62	39	50.4	-3.9	81	24	24	13	0	10	38	65	3.34	-.16	1.18	12	3	.3	T	12.9	SSW	--	---	--	6	8	16	6.8	--
Louisville	485	999.0	1017.0	64	41	52.3	-2.5	83	24	27	13	0	5	39	63	3.17	-.71	2.16	13	2	T	T	10.0	WSW	42	NW	5	7	7	16	6.5	60
LOUISIANA																																
Baton Rouge	64	1015.2	1017.8	74	53	63.8	-4.1	85	25	39	7	0	0	53	74	6.55	+2.16	2.84	12	8	T	T	7.7	S	--	---	--	8	10	12	6.3	--
Lake Charles	12	1015.2	1016.5	76	56	66.9	-1.4	85	30	40	6	0	0	56	77	3.59	-.77	1.62	10	8	0	0	12.6	SE	--	---	--	4	12	14	6.7	--
New Orleans	12	1016.6	1018.3	75	58	66.4	-2.4	84	25	46	6	0	0	54	75	6.68	+1.44	2.55	12	11	0	0	7.3	S	22	SE	29	13	6	11	5.6	57
Shreveport	174	1007.5	1016.4	73	53	62.9	-3.3	85	3	38	6	0	0	52	74	5.95	+1.32	2.89	11	7	T	T	11.2	SSE	31	S	3	7	10	13	6.4	58
MAINE																																
Caribou	624	990.9	1014.6	44	28	36.1	+0.5	62	27	15	7	0	23	27	71	2.60	-0.17	1.12	13	0	3.2	5	13.6	NNW	43	NW	30	4	5	21	7.9	--
Eastport	33	1011.5	1014.6	40	33	39.1	+0.1	64	18	21	10	0	15	--	--	3.83	+0.99	2.03	16	2	2.9	3	----	---	37	S	21	6	7	17	6.9	48
Portland	61	1010.8	1014.7	51	31	40.9	+0.8	70	18	21	11	0	21	31	71	2.38	-1.00	0.53	12	0	T	T	7.6	S	46	S	20	9	4	17	6.7	52
MARYLAND																																
Baltimore	14	1016.6	1017.1	60	41	50.6	-1.7	76	19	24	14	0	6	36	60	1.56	-1.78	0.52	13	3	0	0	10.4	S	--	---	--	5	12	13	6.6	--
Frederick	294	------	------	62	37	50.0	----	80	19	22	14	0	11	--	--	1.88	-----	0.47	--	--	T	T	----	---	--	---	--	--	--	--	----	--
MASSACHUSETTS																																
Boston	12	1010.2	1014.8	55	39	46.8	+0.4	75	4	28	7	0	6	31	58	2.38	-0.96	0.52	14	1	T	T	13.1	WNW	39	NE	7	4	10	16	7.2	54
Nantucket	43	1014.2	1014.8	48	36	42.1	-1.3	57	18	26	8	0	9	36	81	2.69	-0.27	0.72	12	0	4.0	1	14.7	WSW	54	NE	7	4	9	17	7.1	44
Pittsfield	1153	------	------	51	29	40.0	-0.9	76	4	16	10	0	22	--	--	2.79	-0.31	0.68	15	1	11.1	4	----	---	--	---	--	3	9	18	7.5	--
MICHIGAN																																
Alpena	587	992.6	1015.6	41	27	34.1	-4.5	63	16	11	8	0	23	--	--	2.33	+.09	.65	18	0	3.3	1	12.0	---	37	NW	11	3	6	21	7.7	41
Detroit	619	988.5	1015.9	50	34	41.5	-4.1	70	17	19	13	0	12	31	71	4.92	+2.46	1.96	18	3	.5	T	11.1	NW	41	NW	11	3	5	22	8.0	42
Escanaba	594	992.6	1015.6	38	26	32.1	-5.8	61	17	9	9	0	26	--	--	2.32	+.09	1.19	10	0	1.8	5	12.7	---	45	N	7	6	5	19	7.2	58
Grand Rapids	638	989.8	1015.6	49	31	39.6	-4.9	67	18	18	13	0	18	30	73	4.93	+2.16	1.17	15	2	.7	T	14.5	WSW	--	---	--	2	3	25	8.4	--
Lansing	859	982.7	1016.1	49	33	40.9	-6.1	67	18	20	13	0	11	30	73	5.01	+2.24	1.14	16	2	.8	T	13.7	W	47	SW	25	3	2	25	8.3	33
Marquette	677	987.8	1015.6	38	26	32.3	-5.5	64	16	12	12	0	26	--	--	4.05	+1.62	1.32	14	1	32.8	21	8.4	---	28	NW	11	4	3	23	8.4	40
Muskegon	627	991.9	1015.5	46	30	38.2	-5.5	65	23	19	13	0	20	30	75	4.02	+1.86	.96	16	3	.6	T	12.1	W	--	---	--	3	5	22	7.9	--
Sault Ste.Marie	721	987.8	1015.6	37	22	29.7	-6.8	50	24	1	8	0	29	22	77	3.14	+1.01	1.03	16	0	14.7	12	9.9	NW	42	W	11	5	4	21	7.7	45
Ypsilanti	722	986.8	1015.9	51	32	41.4	----	70	17	18	13	0	16	31	72	5.52	-----	1.97	15	5	T	T	11.5	WSW	32	W	1	3	5	22	8.2	--
MINNESOTA																																
Duluth	1128	963.1	1016.3	38	25	31.2	-5.8	58	23	8	12	0	26	22	77	3.03	+.97	.91	11	1	19.1	10	14.6	NW	47	NE	25	5	4	21	7.8	39
Inter'l Falls	1179	974.9	1017.5	38	21	29.5	-8.7	55	16	2	8	0	28	19	69	2.03	+.29	1.07	13	0	23.0	14	----	---	--	---	--	5	6	19	7.3	--
Minneapolis	830	981.4	1015.9	44	30	36.9	-9.5	69	17	17	12	0	21	26	68	2.19	-.04	.87	10	2	6.4	1	13.5	NW	40	NW	11	8	3	19	7.0	38
Rochester	1014	978.3	1016.2	47	29	37.6	-7.2	69	17	19	13	0	21	26	67	2.20	-.26	.74	13	3	.4	T	13.4	WNW	--	---	--	7	2	21	7.3	--
St. Cloud	1034	977.7	1016.6	42	22	33.8	-10.6	66	16	13	12	0	27	25	74	3.32	+1.20	1.08	11	1	11.1	6	10.8	NW	--	---	--	6	5	19	7.3	--
St. Paul	703	989.2	1016.2	45	29	37.1	-8.5	69	17	17	12	0	21	26	68	2.65	+.30	.80	12	1	2.4	T	13.5	NW	34	NW	10	8	2	20	7.0	--
MISSISSIPPI																																
Jackson	315	1006.4	1018.1	73	50	61.5	-3.7	87	27	36	14	0	0	48	67	2.98	-2.35	1.03	11	8	0	0	8.5	SSE	39	NW	4	12	7	11	5.1	66
Meridan	294	1004.7	1018.5	75	47	60.9	-3.1	86	27	29	7	0	3	48	68	3.13	-1.65	1.36	8	8	0	0	7.5	SSW	--	---	--	9	8	13	5.6	--
Vicksburg	234	1008.5	1017.9	72	52	61.9	-3.7	84	28	39	14	0	0	49	73	4.08	-1.11	.97	12	10	0	0	6.2	SSE	32	SW	29	10	10	10	5.4	62
MISSOURI																																
Columbia	733	986.8	1016.2	60	40	50.0	-4.8	85	23	24	14	0	7	36	66	3.53	-.24	1.52	10	8	1.0	1	9.3	S	31	N	3	6	12	12	6.0	59
Kansas City	741	988.5	1016.1	62	40	50.9	-3.9	87	23	22	13	0	8	34	59	2.39	-1.13	1.23	11	3	T	T	11.6	SSW	49	NW	10	9	10	11	5.9	62
St. Joseph	809	980.7	1015.8	61	37	48.9	-4.6	92	23	20	13	1	8	34	61	.76	-2.43	.34	6	5	.3	T	14.2	NW	38	NW	10	6	15	9	5.8	63
St. Louis	465	995.6	1016.3	66	43	51.3	-4.8	89	23	25	13	0	4	38	66	4.07	+.26	1.29	12	8	T	T	12.9	WNW	54	S	10	9	7	14	6.2	60
Springfield	1265	968.5	1016.0	63	41	52.1	-3.1	82	22	25	13	0	7	38	62	2.95	-.91	1.55	13	8	T	T	14.2	SSE	51	S	10	11	8	11	5.7	58
MONTANA																																
Billings	3568	889.9	1015.2	54	31	42.6	-3.4	72	20	17	30	0	19	29	65	1.17	-----	.51	11	1	10.2	6	12.2	NNE	66	W	1	3	8	19	7.6	60
Butte	5553	827.6	1017.3	48	24	36.3	-2.8	68	29	9	30	0	28	22	59	.81	-.25	.31	10	2	7.4	1	12.1	NW	--	---	--	2	7	21	7.9	--
Glasgow	2090	941.4	1017.7	50	28	38.9	-5.6	66	16	16	9	0	23	27	67	.85	-.10	.35	7	0	5.2	5	----	---	--	---	--	0	11	19	7.8	--
Great Falls	3663	887.2	1015.6	50	31	40.7	-5.0	73	13	19	9	0	20	25	58	1.47	+.32	.60	8	0	11.1	4	13.8	SW	65	W	17	2	5	23	8.3	60
Havre	2488	926.2	1016.6	52	30	41.0	-2.7	74	20	10	9	0	24	--	--	.61	-.38	.28	5	0	4.1	3	10.3	---	50	W	1	2	13	15	7.2	57
Helena	3893	872.7	1016.8	52	29	40.6	-2.9	72	20	10	4	0	22	26	61	1.25	+.13	.59	9	2	8.5	3	8.1	W	52	W	1	3	6	21	8.1	50
Kalispell	2965	911.6	1016.1	50	32	41.0	-2.6	67	20	23	3	0	18	28	--	.87	+.07	.20	9	0	4.4	1	9.9	S	--	---	--	2	6	22	8.1	--
Miles City	2629	931.6	1017.1	51	28	39.6	----	70	21	20	7	0	24	29	--	1.10	-----	.62	6	1	5.2	2	14.7	NNW	--	---	--	2	7	21	7.8	--
Missoula	3201	901.8	1017.1	54	30	41.9	-2.0	71	20	22	4	0	20	26	58	.71	-.19	.44	8	0	6.9	7	7.0	NW	51	NW	23	3	4	23	8.0	48
NEBRASKA																																
Grand Island	1841	948.5	1015.6	57	31	44.0	----	92	22	12	13	1	19	27	60	.79	-----	.51	5	1	1.6	1	12.3	NW	--	---	--	4	15	11	6.5	--
Lincoln	1180	972.6	1016.1	59	35	47.1	-4.4	91	22	17	13	1	11	30	61	1.43	-1.10	.54	7	3	2.8	2	11.7	N	41	NW	10	5	12	13	6.4	55
Norfolk	1554	960.4	1016.9	54	30	42.1	-6.6	91	22	15	13	1	21	28	64	1.09	-1.62	.45	7	1	3.2	3	17.5	NW	--	---	--	7	10	13	6.3	--
North Platte	2783	915.7	1015.7	56	30	43.1	-5.5	90	22	15	4	1	18	29	64	1.43	-.63	.55	8	1	2.4	2	12.7	S	52	N	18	4	13	13	6.8	51
Omaha	978	976.0	1016.3	57	36	46.5	-4.5	90	22	19	13	2	10	30	59	1.71	-.80	.66	7	3	1.7	1	15.2	NW	54	NW	10	7	11	12	6.0	58
Valentine	2581	923.8	1017.3	50	27	38.5	-7.2	82	22	12	13	0	24	--	--	1.23	-.62	.50	7	1	11.0	5	10.0	---	34	NW	24	4	7	19	7.4	57
NEVADA																																
Elko	5075	843.6	1015.7	60	27	43.3	----	78	20	15	24	0	25	28	59	1.03	-----	.58	5	0	7.1	3	7.5	W	--	---	--	6	14	10	5.6	--
Ely	6257	807.3	1014.9	60	25	42.3	+2.0	77	20	13	29	0	24	--	--	.16	-.90	.10	3	0	2.1	1	12.3	---	56	S	13	11	9	10	5.1	77
Las Vegas	2162	934.6	1009.8	83	51	67.1	+5.5	98	21	38	10	5	0	15	16	T	-.26	T	0	0	0	0	10.4	SW	--	---	--	17	13	0	2.3	91
Reno	4404	861.2	1014.9	65	31	48.0	+1.9	83	20	21	11	0	22	27	48	.50	+.03	.47	2	0	1.7	T	7.1	W	52	S	6	16	9	5	3.7	81
Winnemucca	4299	867.3	1015.4	63	28	45.7	-1.0	83	20	19	10	0	23	25	47	.35	-.49	.19	6	0	1.3	1	8.9	---	36	W	7	9	10	11	5.9	81
NEW HAMPSHIRE																																
Concord	339	1004.1	1014.8	54	29	41.8	+0.2	77	4	14	7	0	21	29	63	2.85	+0.07	1.75	14	0	0.7	1	6.6	WNW	25	NW	9	4	10	16	7.1	50
Mt. Washington	6262	799.9	1018.0	26	14	19.9	-3.5	43	4	-1	6	0	29	--	--	3.88	-3.07	0.73	18	1	15.5	6	----	---	--	---	--	4	7	19	7.5	26
NEW JERSEY																																
Atlantic City	8	1013.9	1015.6	54	40	47.3	-0.5	70	18	25	14	0	5	--	--	1.89	-1.10	0.56	10	4	T	T	----	---	40	SE	4	3	11	16	7.2	62
Newark	11	1014.6	1015.6	58	39	48.4	-1.8	82	4	26	14	0	7	34	60	1.96	-1.76	0.47	14	1	0.7	1	11.1	NW	35	SW	4	5	7	18	7.4	--
Trenton	56	1008.8	1015.9	57	39	48.3	-1.5	80	19	25	7	0	9	--	--	1.79	-1.15	0.67	10	2	T	T	----	---	--	---	--	--	--	--	----	--
NEW MEXICO																																
Albuquerque	5310	845.6	1009.1	74	43	58.5	+4.5	85	22	34	10	0	0	21	27	0.27	-.33	.23	3	0	T	T	10.3	W	45	SW	W	18	7	5	3.6	84
Clayton	4959	844.6	1013.9	68	35	51.3	0	90	22	20	5	1	10	29	48	.54	-1.13	.32	3	0	2.0	T	17.1	SSW	--	---	—	9	13	8	4.9	--
Raton	6379	802.6	1010.3	67	31	48.8	----	82	22	26	14	0	7	34	60	.35	-----	.16	3	0	2.0	2	12.9	SW	--	---	--	10	14	6	4.9	--
Roswell	3611	889.3	1011.2	77	43	60.1	-.5	93	22	28	6	4	3	24	31	.14	-.75	.14	1	1	0	0	9.6	SSE	39	SW	9	17	6	7	3.9	87

Table 2—Continued

APRIL 1950

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F or above	Temperature: No. of days: Min 32° F or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset): Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In	In.	In.			In	In	M p h		M p h			0—3	4—7	8—10	%
NEW YORK																													3	7	10	
Albany	277	1011.5	1015.0	55	32	43.1	-1.3	79	4	19	1	0	16	32	64	1.55	-0.61	0.71	11	0	7.0	5	10.5	WNW	37	N	6	2	7	21	7.6	53
Bear Mountain	1300	------	------	50	34	42.3	----	75	4	19	7	0	11	--	--	2.97	-----	0.85	16	0	1.8	2	----	---	--	---	--	5	10	15	6.9	--
Binghamton	858	984.8	1016.2	53	32	42.8	-2.5	77	19	19	10	0	16	31	70	3.07	+0.59	1.27	21	2	3.1	2	6.9	WSW	22	WW	11	2	5	23	8.0	45
Buffalo	693	987.5	1016.0	48	32	39.9	-3.9	70	4	19	13	0	15	30	69	2.46	-0.10	0.68	18	1	2.8	1	14.7	SW	54	SW	11	4	8	18	7.8	47
Canton	406	998.0	1014.2	50	30	39.9	-2.0	74	19	15	6	0	18	--	--	1.92	-0.26	0.63	14	0	2.0	1	----	---	36	W	12	4	10	16	7.0	43
New York	10	1004.4	1015.8	56	41	48.3	-1.1	75	4	25	7	0	6	33	81	2.04	-1.19	0.59	11	1	1.6	2	13.5	NW	43	N	6	5	9	16	7.2	45
Oswego	292	1003.4	1015.9	48	34	40.5	-2.1	77	4	20	6	0	12	--	--	1.73	-0.61	0.46	16	0	2.4	2	----	---	27	N	14	8	6	16	6.5	51
Rochester	543	999.6	1016.1	50	32	40.8	-4.1	74	4	20	7	0	16	30	68	1.87	-0.48	0.54	15	1	3.2	2	11.4	WSW	45	W	11	4	8	18	7.3	61
Syracuse	399	993.6	1016.1	53	32	42.5	-0.5	78	4	19	7	0	14	30	67	1.57	-0.90	0.37	20	0	4.4	2	10.4	WNW	43	SE	1	3	8	19	7.5	48
NORTH CAROLINA																															
Asheville	2203	943.1	1017.5	65	41	52.9	-1.0	85	24	24	7	0	10	37	62	1.78	-1.24	1.09	8	3	T	T	9.0	NNW	29	NW	5	11	10	9	5.1	69
Charlotte	741	989.5	1017.5	71	48	59.5	-0.3	90	28	29	7	1	3	40	55	1.73	-1.58	1.35	6	5	0	0	9.5	SW	35	SW	11	10	13	7	5.2	78
Greensboro	891	985.4	1017.4	70	42	56.0	-0.3	88	29	25	7	0	9	37	55	1.49	-2.08	1.13	8	5	T	T	9.9	SW	27	SW	11	11	13	6	5.0	69
Hatteras	4	1016.9	1017.2	65	52	58.2	-1.6	79	28	36	14	0	0	49	74	2.28	-1.26	0.89	6	4	0	0	13.5	S	37	NW	6	11	8	11	5.3	69
Raleigh	400	1001.4	1016.9	71	47	59.1	-0.3	90	24	29	14	1	3	39	55	2.37	-1.10	1.65	6	3	T	T	8.7	SW	32	NW	30	14	12	4	4.1	70
Wilmington	6	1022.4	1017.9	70	52	61.0	-1.0	83	24	34	7	0	0	--	98	1.55	-1.11	0.99	4	2	0	0	7.7	SW	27	SW	11	17	7	6	3.9	80
Winston-Salem	967	981.7	1016.8	69	44	56.5	-0.4	88	29	26	7	0	6	36	50	1.84	-1.61	0.88	6	2	T	T	10.0	SSW	--	---	--	10	14	6	4.8	--
NORTH DAKOTA																															
Bismarck	1653	956.3	1018.3	42	25	33.7	-6.7	69	21	8	12	0	25	26	77	1.71	+.19	.81	8	0	11.3	10	14.3	NNW	56	NW	18	4	6	20	7.6	39
Devils Lake	1471	963.1	1018.3	38	24	31.2	-7.6	63	17	6	12	0	24	--	--	1.87	+.35	.67	10	0	18.9	7	12.5	---	36	N	7	5	9	16	6.8	50
Fargo	895	982.1	1017.3	40	27	33.5	-7.1	68	17	10	12	0	23	26	77	1.79	-.39	.36	14	0	12.4	4	16.4	NNW	45	NW	18	6	4	20	7.0	49
Williston	1877	948.9	1017.6	43	27	35.0	-7.0	62	21	15	8	0	23	--	--	1.46	+.26	1.06	9	0	9.4	4	9.5	---	38	W	17	2	4	24	8.3	67
OHIO																															
Akron	1210	970.9	1016.7	51	31	41.0	-6.9	68	17	13	14	0	15	33	74	4.39	+1.38	.98	18	3	2.6	1	10.7	SW	--	---	--	3	5	22	8.0	--
Cincinnati	553	993.6	1017.0	61	41	50.7	-3.6	82	24	27	13	0	6	35	63	4.20	+1.08	2.47	14	6	.3	T	11.9	SSW	--	---	--	5	8	17	7.2	39
Cleveland	787	987.5	1016.1	52	34	42.9	-3.3	67	18	20	13	0	12	33	72	5.90	+3.46	1.92	22	3	3.0	2	13.1	S	46	SW	11	2	8	20	8.0	35
Columbus	724	986.1	1016.8	56	37	46.4	-4.8	75	10	21	13	0	9	34	68	3.80	+.93	1.30	12	2	.2	T	11.3	S	35	SW	1	5	5	20	7.6	41
Dayton	1002	979.7	1016.7	55	35	45.0	-5.5	75	10	19	13	0	13	35	71	4.21	+1.01	1.23	16	3	2.0	T	10.0	SSW	51	W	11	4	6	20	7.6	43
Sandusky	603	992.6	------	52	36	43.8	-3.4	71	18	22	13	0	12	--	--	5.02	+2.47	1.90	17	3	1.7	1	13.8	---	43	SW	11	5	5	20	7.8	33
Toledo	621	992.2	1016.1	51	33	42.3	-3.8	70	10	19	13	0	15	33	73	5.97	+3.32	2.09	17	6	.7	T	15.5	SW	50	W	1	3	5	22	8.0	34
Youngstown	1178	972.6	1016.3	52	32	41.7	-5.4	71	4	11	14	0	14	32	73	5.53	+2.70	1.24	19	3	3.0	1	13.4	SW	46	W	11	3	8	19	7.9	--
OKLAHOMA																															
Oklahoma City	1254	967.2	1014.7	71	47	59.3	-.5	90	3	33	13	1	0	41	60	.85	-2.44	.63	6	6	T	T	11.8	S	31	N	3	10	8	12	5.5	71
Tulsa	672	991.2	1015.3	70	46	57.9	-1.0	86	3	30	6	0	3	40	58	.51	-3.68	.19	6	4	T	T	15.1	S	41	S	23	8	10	12	5.9	58
OREGON																															
Baker	3446	895.4	1018.1	54	30	42.1	-3.1	69	20	19	3	0	20	26	--	.59	-.50	.25	5	0	4.5	3	11.3	N	26	SW	1	2	14	14	7.1	63
Burns	4143	872.7	1016.7	57	29	43.0	-1.3	74	20	18	24	0	21	25	50	.16	-.57	.08	5	0	T	T	----	---	--	---	--	7	6	17	6.9	--
Eugene	364	1005.4	1019.7	60	37	48.9	----	76	19	30	4	0	4	40	74	1.44	-----	.55	13	0	T	0	8.4	N	--	---	--	4	6	20	7.6	--
Meacham	4050	876.4	1018.7	47	29	38.0	----	65	20	20	4	0	24	27	67	2.20	-----	.75	14	0	19.0	11	7.5	WNW	--	---	--	3	2	26	8.5	--
Medford	1314	970.5	1018.7	64	36	50.3	-1.8	87	19	29	4	0	6	37	65	.58	-.75	.34	7	0	0	0	7.4	N	--	---	--	4	11	15	7.1	--
Pendleton	1489	963.8	1017.8	60	38	48.7	-2.1	74	11	32	29	0	5	31	54	.82	-.23	.39	3	1	1.9	1	9.3	WSW	--	---	--	2	11	17	7.4	--
Portland	30	1018.6	1019.6	59	43	50.8	-1.0	78	19	37	4	0	0	39	70	2.31	-.56	.60	14	0	0	0	5.7	NNW	28	E	4	1	7	22	8.2	53
Roseburg	479	1000.7	1019.6	62	40	51.1	+.1	84	19	32	4	0	2	--	--	1.16	-1.11	.42	13	0	T	T	4.6	---	20	S	7	2	9	19	7.7	62
Salem	195	1011.9	1019.3	59	38	48.4	-2.9	78	19	29	4	0	5	40	74	1.88	-.56	.60	17	0	T	0	6.4	SSE	--	---	--	2	7	21	8.0	--
Sexton Summit	3836	------	------	52	33	42.4	----	76	19	25	22	0	18	--	--	1.54	-----	.56	10	0	5.7	3	----	---	--	---	--	4	11	15	7.2	--
Troutdale	29	------	------	59	39	48.8	----	72	19	30	21	0	2	39	71	2.80	-----	.63	16	0	T	T	8.4	E	--	---	--	1	3	20	8.2	--
PENNSYLVANIA																															
Allentown	381	1002.0	1016.4	57	35	46.2	-2.5	79	19	23	14	0	12	32	62	1.97	-1.43	0.38	12	1	T	T	9.8	WNW	--	---	--	5	8	17	7.2	--
Curwensville	2215	------	------	50	28	39.1	----	75	4	10	13	0	17	28	71	4.14	-----	1.21	20	3	3.3	3	12.8	WNW	30	WNW	5	3	5	22	8.0	--
Erie	655	------	------	48	35	41.5	-3.6	70	4	21	13	0	11	--	--	4.12	+1.39	0.90	14	3	0.2	T	----	---	31	SW	4	3	9	18	7.7	37
Harrisburg	335	1002.7	1016.5	58	37	47.6	-3.3	80	4	21	14	0	10	32	57	1.66	-1.03	0.33	14	2	T	T	8.8	WNW	34	NW	11	3	9	18	7.5	57
Park Place	1932	------	------	52	32	41.9	----	74	19	12	14	0	15	--	--	2.37	-----	0.61	14	-	2.6	1	----	---	--	---	--	3	8	19	7.5	--
Philadelphia	26	1015.6	1016.1	59	41	49.6	-2.5	79	19	24	14	0	8	35	62	1.95	-1.10	0.87	11	3	T	T	11.3	NW	27	NW	8	4	13	13	6.8	51
Pittsburgh	1248	985.4	1016.2	57	38	47.3	-3.7	79	4	18	14	0	10	32	62	2.61	-0.31	0.69	14	2	0.6	T	11.4	NW	38	W	11	4	7	19	7.6	36
Reading	266	1004.1	1016.3	58	39	48.7	-2.1	79	19	23	14	0	10	--	--	1.84	-1.43	0.41	12	2	T	T	----	---	49	SW	1	5	7	18	7.2	47
Scranton	746	986.5	1015.9	54	35	44.8	-3.3	76	19	22	7	0	12	--	--	3.03	+0.26	1.16	16	2	1.8	1	----	---	29	S	19	5	11	14	6.7	39
Williamsport	527	997.3	1016.1	56	34	44.9	-4.1	78	4	21	14	0	14	30	61	1.79	-1.68	0.42	13	1	0.8	1	8.5	WNW	62	S	4	3	8	19	7.4	--
RHODE ISLAND																															
Block Island	35	1013.9	1014.9	49	38	43.7	-0.3	66	18	29	7	0	6	--	--	2.67	-0.86	1.01	7	0	3.9	3	----	---	70	NE	7	4	9	17	7.4	50
Providence	55	1008.8	1014.9	56	38	46.9	+0.3	77	18	27	7	0	6	31	63	2.88	-0.33	0.98	11	0	T	T	10.2	NW	43	SW	4	2	14	14	7.3	45
SOUTH CAROLINA																															
Charleston	9	1016.9	1018.2	72	55	63.3	-1.2	82	28	37	7	0	0	47	63	.93	-1.60	.65	3	1	0	0	9.4	S	34	NW	6	17	9	4	3.9	82
Columbia	332	1009.1	1017.4	74	50	61.7	-1.6	88	29	31	7	0	1	43	56	2.47	-.42	1.13	6	5	0.2	T	9.3	SSW	32	SW	27	13	10	7	4.3	71
Florence	146	1012.2	1017.8	75	48	61.2	----	89	24	31	7	0	4	44	59	3.81	-----	1.87	5	3	0	0	8.7	SW	--	---	--	11	14	5	4.4	--
Greenville	1006	980.0	1017.0	70	46	58.1	-0.5	88	28	30	7	0	3	39	55	1.02	-2.70	.64	7	3	0	0	9.1	SW	36	SW	4	12	10	8	4.9	78
Spartanburg	801	987.8	1017.8	71	46	58.4	-0.8	88	29	28	7	0	3	39	54	1.12	-2.38	.48	8	3	0	0	9.8	SW	40	WSW	23	12	10	8	4.8	--
SOUTH DAKOTA																															
Huron	1282	969.2	1017.5	47	29	37.9	-7.2	75	17	14	13	0	21	27	70	1.33	-.91	.60	7	2	8.1	3	15.4	NNW	56	NW	25	4	8	18	7.3	54
Rapid City	3215	900.8	1016.7	49	27	38.0	-6.1	73	17	9	30	0	22	26	68	1.63	+.20	.91	6	0	15.2	10	17.8	NNW	70	NW	24	3	10	17	7.6	76
Sioux Falls	1420	964.8	1017.2	48	28	37.8	-9.5	75	22	11	13	0	26	26	68	1.23	-1.30	.74	6	0	7.2	5	15.6	NW	45	W	18	5	7	18	7.2	--
TENNESSEE																															
Bristol	1519	962.8	1017.8	64	40	51.8	-5.6	85	29	24	7	0	11	38	61	1.53	-1.94	.51	11	3	.2	T	7.8	WSW	--	---	--	5	13	12	6.1	--
Chattanooga	670	989.5	1017.9	70	44	57.0	-.6	85	27	28	7	0	4	40	59	1.10	-3.75	.41	7	1	0	0	7.8	S	33	WW	4	12	5	13	5.2	61
Knoxville	949	982.4	1018.1	68	44	55.8	-1.5	86	29	26	7	0	5	40	58	1.06	-3.08	.43	7	4	T	T	11.8	SW	50	W	4	9	9	12	5.9	62
Memphis	263	1007.1	1017.4	69	47	58.3	-3.5	83	23	30	14	0	2	44	61	2.53	-2.25	.97	5	5	0	0	11.6	W	30	NW	5	8	8	14	5.8	70
Nashville	577	997.6	1017.8	67	43	55.2	-3.8	83	23	25	14	0	6	43	67	1.58	-2.55	.49	9	5	T	T	8.3	S	34	W	20	8	9	13	5.8	46
TEXAS																															
Abilene	1752	952.3	1012.5	77	51	64.1	+1.1	96	3	32	5	2	1	45	59	2.61	-.10	1.11	7	5	T	T	16.8	S	52	N	3	10	9	11	5.4	73
Amarillo	3590	889.3	1011.5	72	40	56.0	+2.2	94	22	26	4	2	5	29	47	.64	-1.19	.28	4	4	T	T	13.7	SW	49	NE	24	14	7	9	4.7	76
Austin	515	994.6	1015.5	76	56	66.0	-1.8	87	3	40	6	0	0	56	76	7.58	+3.24	2.38	9	6	T	0	11.0	S	32	NE	25	2	10	18	7.7	35
Big Spring	2533	924.8	1012.4	78	51	64.4	+.4	93	3	35	5	5	0	39	51	1.70	-.02	1.17	8	4	0	0	15.8	S	--	---	--	13	8	8	5.1	--
Brownsville	16	1004.7	1012.3	83	69	75.9	+2.2	91	29	59	6	2	0	67	80	.44	-1.29	.25	2	1	0	0	15.0	SE	34	SE	10	1	13	16	7.4	36
Corpus Christi	40	1013.2	1013.7	80	64	72.2	+3.2	92	24	50	6	1	0	65	84	2.70	+.92	1.25	8	2	T	T	15.0	SSE	47	SE	9	3	6	21	7.7	55
Dallas	487	997.6	1015.1	74	52	63.2	-1.9	91	3	36	5	1	0	49	67	5.11	+.85	1.71	9	7	T	T	12.4	S	41	S	29	7	6	17	6.3	46
Del Rio	957	978.3	1011.2	82	61	71.2	+.6	98	29	43	5	5	0	54	63	.88	-.91	.48	6	6	0	0	10.0	---	30	NW	4	8	9	13	5.4	58
El Paso	3920	883.8	1009.1	80	52	65.9	+3.6	90	21	41	11	1	0	27	26	T	-.26	T	0	0	0	0	13.2	W	47	NW	3	19	5	6	3.1	87
Fort Worth	688	991.2	1015.0	75	52	63.6	-.5	94	3	36	6	2	0	48	64	4.73	+.71	1.66	10	7	T	T	16.2	S	45	ESE	16	9	8	13	5.7	--
Galveston	7	1015.9	1016.1	72	63	67.6	-1.1	78	27	51	6	0	0	60	82	5.27	+2.21	3.04	11	8	0	0	14.2	SE	34	N	4	2	15	13	6.8	68
Houston	41	1013.5	1016.0	76	60	67.7	-1.6	85	30	46	6	0	0	59	79	6.82	+3.24	2.89	12	9	T	T	12.6	SE	36	SE	16	4	4	22	7.8	47
Laredo	500	997.0	1011.3	87	65	76.0	+.8	104	29	51	6	13	0	59	64	.55	-.65	.20	9	5	0	0	13.2	SE	--	---	--	3	11	16	7.1	--
Lubbock	3238	901.1	1011.7	74	45	59.4	-.3	92	22	30	5	2	2	35	50	.88	-.54	.37	6	3	0	0	15.4	SW	--	---	--	4	16	5	9	4.3	--
Palestine	491	998.3	1016.6	73	54	63.7	-2.3	94	3	40	6	0	0	--	--	4.48	+.07	1.98	10	6	0	0	8.8	---	24	S	3	5	9	16	6.5	57
Port Arthur	5	1015.2	1015.8	75	60	67.3	-1.2	83	27	44	6	0	0	58	82	9.97	+6.98	5.78	12	9	T	T	15.0	SE	45	SE	17	4	11	15	6.9	55

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days 90° F or above	Temperature: No. of days 32° F or below	Temperature: Average dew point	Temperature: Average relative humidity*	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days 01 inch or more	Precipitation: No. of days With thunderstorms	Precipitation: Snow, Sleet, Hail Total	Precipitation: Snow, Sleet, Hail Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile Speed	Wind: Fastest mile Direction	Wind: Fastest mile Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb*	*Mb*	°F	°F.	°F.	°F.	°F		°F				°F	%	*In.*	*In.*	*In.*			*In.*	*In.*	M. p. h.		M. p. h.			0—3	4—7	8—10	0—10	%
San Angelo	1903	946.5	1012.8	77	53	65.2	+.1	94	29	34	5	4	0	46	60	1.89	-.10	.70	5	4	0	0	12.2	SSW	34	NNE	25	9	10	11	5.6	--
San Antonio	782	989.8	1014.1	77	58	67.1	-2.0	89	24	45	7	0	0	56	73	3.42	+.23	1.25	12	6	T	T	10.8	SE	40	SE	28	2	6	22	8.2	38
Victoria	109	1010.2	1014.4	78	61	69.5	-1.1	88	30	45	6	0	0	60	79	3.21	+.43	1.25	10	5	0	0	13.0	SE	--	---	--	1	8	21	8.3	--
Waco	504	996.3	1014.3	75	54	64.7	-2.4	89	3	39	5	0	0	53	70	3.72	-.52	1.36	8	4	0	0	13.2	S	--	---	--	7	9	14	6.7	--
Wichita Falls	1027	977.7	1013.7	75	49	62.1	-2.8	99	3	31	5	2	2	43	58	3.28	+.64	2.56	6	5	0	0	15.3	S	52	SE	28	13	7	10	4.6	--
UTAH																																
Milford	5029	843.9	1013.3	66	31	48.4	+.5	84	21	15	25	0	19	22	44	.11	-.73	.11	1	2	T	T	11.7	N	--	---	--	14	12	4	4.1	--
Salt Lake City	4222	869.6	1014.1	61	36	48.5	+.6	77	20	25	4	0	12	29	50	1.29	-.42	.44	6	2	1.8	2	9.6	SE	47	S	[illegible]	8	10	12	5.6	76
VERMONT																																
Burlington	398	999.7	1015.0	50	30	40.2	-3.1	71	4	16	7	0	19	30	67	1.52	-0.63	0.90	11	1	0.9	1	8.5	SSW	35	S	1	4	11	15	7.2	55
VIRGINIA																																
Cape Henry	16	1015.6	1016.3	63	46	54.5	-0.1	85	23	32	14	0	1	--	--	1.86	-1.44	0.62	12	4	0	0	----	---	42	[illegible]	7	10	8	12	5.8	77
Lynchburg	947	982.4	1016.6	[illegible]	42	53.9	-1.7	[illegible]	24	27	7	0	6	35	54	2.23	-0.72	0.69	8	2	T	T	10.7	SSW	36	[illegible]	11	8	14	8	5.7	65
Norfolk	11	1013.5	1017.1	66	46	56.3	-0.5	84	29	30	14	0	2	41	65	3.55	+0.32	1.79	10	4	0	0	12.7	SW	33	S	1	9	7	14	6.1	66
Richmond	162	1010.5	1016.8	67	44	55.3	-1.3	83	23	27	14	0	4	39	61	0.75	-2.74	0.38	5	1	0	0	7.7	SSW	33	SW	1	8	12	10	5.9	71
Roanoke	1192	974.3	1016.7	66	41	53.7	-3.0	88	24	25	15	0	7	35	54	1.71	-1.19	0.81	7	1	T	T	12.0	NW	--	---	--	8	12	10	5.8	--
Urbanna	31	1015.9	------	65	43	53.8	----	83	1	27	14	0	5	--	--	1.43	-----	0.60	8	2	0	0	----	---	--	---	--	6	10	14	6.3	--
Wash.Nat'l. AP	14	1013.9	1016.9	62	42	52.4	-0.9	80	4	24	14	0	5	35	57	1.86	-1.41	0.85	12	3	T	T	12.4	NW	44	NW	11	4	9	17	7.4	50
WASHINGTON																																
Ellensburg	1727	955.0	1018.1	55	31	43.0	-5.2	69	20	22	4	0	19	30	60	.62	+.15	.26	7	0	T	0	13.4	NW	--	---	--	5	8	17	7.0	--
Kelso	17	--- --	--- --	58	36	46.8	----	79	19	28	4	0	3	39	76	4.01	-----	1.18	15	0	T	0	7.1	SSE	--	---	--	1	8	21	8.5	--
North Head	194	1011.2	1019.0	52	42	47.0	-.5	72	19	37	6	0	0	--	--	4.87	+.73	1.30	20	0	T	T	15.9	---	52	SE	11	3	4	23	8.1	33
Olympia	190	1011.2	1018.7	56	35	45.4	----	78	19	28	21	0	8	38	76	3.10	-----	.80	16	0	T	T	7.0	S	--	---	--	1	8	21	8.1	--
Port Angeles	8	1017.6	1018.5	51	41	45.9	----	59	19	37	22	0	0	41	81	1.31	-----	.35	16	0	T	0	10.3	WNW	--	---	--	5	8	17	7.4	--
Seattle	14	1013.9	1018.6	58	42	49.7	-1.4	75	19	37	22	0	0	38	69	2.39	+.01	.83	13	0	0	0	9.9	S	38	SW	22	3	10	17	7.5	43
Seattle-Tacoma AP	379	1003.7	1018.2	55	38	46.4	----	74	19	30	24	0	2	36	69	2.92	-----	.81	16	1	T	T	11.9	SW	--	---	--	1	7	22	8.3	--
Spokane	2357	947.2	1017.0	54	33	43.9	-4.5	69	20	27	26	0	13	28	55	.43	-.70	.18	6	0	.1	T	10.6	SSW	41	SW	1	5	6	19	7.4	60
Stampede Pass	3960	878.8	1019.4	38	27	32.0	----	50	19	21	4	0	28	--	--	8.78	-----	1.98	20	0	67.8	173	13.9	---	61	E	4	2	4	24	8.6	--
Stevenson	319	------	------	56	40	48.0	----	70	19	33	4	0	0	--	--	4.46	-----	.83	16	0	0	0	----	---	--	---	--	1	5	24	8.7	--
Tacoma	127	1011.2	1018.3	55	40	47.7	-.9	74	19	34	23	0	0	--	--	2.07	-.71	.69	14	1	3.2	T	9.1	---	34	W	1	4	9	17	6.9	44
Tatoosh	101	1014.9	1018.1	50	41	45.3	-.8	58	18	37	6	0	0	40	80	8.77	+3.14	2.07	22	0	T	T	15.7	W	61	S	16	3	4	23	8.4	38
Walla Walla	949	981.4	1017.6	61	41	50.6	-2.5	74	11	33	6	0	0	34	--	.86	-.65	.42	8	2	.7	1	9.3	SW	30	W	1	4	12	14	6.7	61
Yakima	1058	978.0	1017.5	61	32	46.7	-5.1	78	20	33	4	0	14	30	53	.40	-.15	.23	5	0	0	0	9.2	W	--	---	--	4	10	16	7.1	--
WEST VIRGINIA																																
Elkins	1969	944.1	1017.5	58	33	45.4	-2.0	78	25	13	7	0	15	34	70	3.07	-.55	1.09	18	5	4.2	2	6.7	WNW	42	NW	11	3	6	21	7.8	46
Huntington	565	------	------	67	42	54.6	+2.2	84	29	24	14	0	9	--	--	.96	-2.74	.20	13	--	.5	T	----	W	--	---	--	--	--	--	---	--
Parkersburg	615	-- ---	1017.0	62	39	50.3	-3.1	80	4	20	14	0	9	35	--	2.60	-.59	.88	12	3	.3	T	9.5	SSW	29	W	12	5	7	18	7.3	42
Petersburg	1013	978.3	------	63	36	49.2	----	80	4	19	7	0	11	--	--	.89	-----	.29	10	3	T	T	----	---	--	---	--	6	8	16	6.9	--
WISCONSIN																																
Green Bay	689	989.5	1015.7	44	27	35.5	-7.7	65	17	13	8	0	24	25	68	3.39	+.74	1.18	13	2	3.9	2	12.8	W	46	NW	11	4	7	19	7.6	41
La Crosse	669	990.5	1015.7	48	33	40.4	-6.8	70	17	21	12	0	16	28	70	4.04	+1.62	1.86	11	2	.2	T	11.6	WNW	42	NW	11	6	5	19	7.2	48
Madison	857	983.4	1015.9	49	30	39.5	-5.9	72	17	18	6	0	19	28	69	2.67	-.10	1.08	11	2	.7	1	15.1	W	56	W	11	5	4	21	7.8	48
Milwaukee	674	989.5	1015.6	46	33	39.2	-4.6	71	22	22	12	0	12	34	74	3.64	+.96	1.31	13	3	5.1	3	15.3	NNE	46	SW	25	3	2	25	8.3	24
WYOMING																																
Casper	5346	834.4	1013.1	53	28	40.7	-3.1	76	22	15	4	0	21	27	62	3.16	+.10	.93	13	2	20.8	4	11.0	SW	--	---	--	4	8	18	7.5	--
Cheyenne	6139	808.7	1014.1	54	27	40.3	-.6	74	22	9	4	0	22	25	58	1.81	-.18	.90	9	2	12.6	[illegible]	15.1	WNW	47	W	1	3	15	12	6.7	70
Lander	5563	826.3	1014.2	55	29	41.8	-.6	75	22	19	4	0	21	23	52	1.93	-.13	.81	9	1	14.0	6	8.5	---	54	W	1	5	13	12	6.1	69
Rock Springs	6741	791.4	1015.2	52	27	39.6	-1.8	72	22	[illegible]	4	0	24	23	57	1.06	-.12	.43	9	2	6.2	2	15.6	W	--	---	--	6	10	14	6.6	--
Sheridan	4021	882.8	1016.0	54	28	40.9	-2.4	73	22	9	5	0	21	27	63	1.50	-.42	.61	11	0	24.2	10	10.8	NW	56	W	8	4	8	18	7.2	63
PACIFIC AREA																																
Canton Island	12	1008.1	1008.7	88	78	82.6	----	91	15	74	17	5	0	75	83	1.83	-----	1.11	13	0	0	0	----	---	--	---	--	6	23	1	4.7	--
Hilo	26	1014.9	1015.6	77	65	70.9	----	82	22	60	2	0	0	67	88	30.34	-----	5.32	29	3	0	0	5.4	SW	--	---	--	0	4	26	9.0	--
Honolulu	12	1015.6	1016.2	79	69	73.8	----	82	7	65	17	0	0	63	71	5.75	-----	3.17	14	2	0	0	11.8	ENE	--	---	--	3	10	17	7.3	--
Lihue	115	1012.2	1016.4	77	68	72.8	----	81	15	60	18	0	0	65	78	3.29	-----	1.46	15	2	0	0	11.5	ENE	--	---	--	1	8	21	8.6	--
Wake Island	11	1015.2	1015.5	83	74	78.3	----	85	30	69	5	0	0	70	77	1.49	-----	.28	15	0	0	0	12.2	E	--	---	--	18	12	0	3.5	--
PUERTO RICO																																
San Juan	9	1013.5	1015.6	80	71	75.3	-1.3	86	7	68	6	0	0	67	77	3.44	-.92	.96	14	0	0	0	9.2	ENE	31	N	8	5	11	14	6.5	46
ALASKA																																
Anchorage	141	1000.3	1005.4	44	27	35.2	-0.2	52	24	7	3	0	28	23	62	0.04	-0.37	.04	1	0	T	3	4.6	NW	40	SE	19	7	4	19	7.2	52
Annette Island	113	1008.3	1012.5	46	36	40.6	-1.9	56	28	28	9	0	3	35	80	7.99	-0.27	2.12	19	0	0.3	T	13.2	ESE	--	---	--	1	5	24	8.9	--
Barrow	29	1018.0	1018.6	9	-5	2.3	+2.7	25	5	-30	1	0	30	-5	72	0.19	+0.07	.08	4	0	1.9	21	13.5	ENE	28	SE	7	8	7	15	6.3	--
Bethel	28	1007.1	1008.5	33	19	26.1	-0.7	45	18	-8	2	0	30	23	85	0.64	+0.09	.17	14	0	5.6	3	10.4	NW	35	S	8	0	4	26	8.9	--
Cordova	44	1007.1	1008.8	43	27	34.6	-0.5	49	11	12	4	0	27	28	77	4.65	+1.05	1.16	14	0	8.6	6	5.8	ESE	35	ESE	19	6	5	19	7.3	--
Fairbanks	442	994.2	1011.9	42	16	28.9	-0.5	56	30	-19	3	0	28	14	65	0.03	-0.27	.03	1	0	0.8	12	6.3	E	24	E	18	11	5	14	5.7	71
Galena	125	1005.1	1009.8	35	15	25.0	+3.7	47	29	-23	2	0	30	16	67	0.89	+0.64	.35	5	0	8.0	8	9.6	N	35	E	7	9	7	14	6.4	--
Gambell	32	1008.1	1009.1	23	12	17.4	-0.9	34	4	0	14	0	30	14	88	5.86	+4.75	1.41	17	0	55.1	51	18.1	NNE	44	SE	1	1	10	19	7.7	--
Juneau	22	1011.2	1012.1	44	31	37.4	-2.8	54	30	19	8	0	20	29	76	2.09	-0.98	.41	16	0	1.5	1	----	SE	34	SE	17	3	3	24	8.6	27
Kotzebue	20	1010.8	1011.5	25	7	16.0	+2.4	36	24	-19	2	0	30	12	83	0.46	+0.11	.15	9	0	5.4	18	17.4	W	--	---	--	6	6	18	7.2	--
McGrath	341	996.3	1009.1	40	18	28.9	+3.7	54	30	-15	3	0	30	20	67	0.67	+0.25	.29	5	0	6.7	16	5.4	WNW	--	---	--	8	7	15	6.5	--
Nome	15	1008.5	1009.1	30	14	21.7	+2.0	40	24	-9	15	0	30	18	82	0.99	+0.32	.37	10	0	9.6	39	11.5	N	50	E	16	6	6	18	6.8	--
Northway	1718	947.9	1012.2	38	11	24.2	-0.7	50	29	-25	3	0	30	15	64	0.03	-0.33	.03	1	0	0.1	16	----	SE	--	---	--	9	6	15	6.0	--
St. Paul Island	28	1007.6	1008.8	35	26	30.3	+1.3	40	22	17	1	0	29	27	83	1.56	+0.27	----	19	0	4.5	3	----	---	--	---	--	[illegible]	7	23	8.7	--
Umiat	340	1006.1	1020.0	11	-6	4.7	+5.0	34	8	-37	1	0	30	-1	83	0.10	-0.24	.04	5	0	1.2	14	8.3	NE	--	---	--	4	11	15	7.0	--
Wales	18	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	---	--	---	--	--	--	--	---	--
Yakutat	31	1009.4	1010.6	43	26	34.5	-2.7	51	30	10	9	0	28	29	81	8.59	+0.81	2.69	13	0	13.4	26	8.1	ESE	--	---	--	4	4	22	8.1	--

*Note: No. of days Max. 70 F. or above for Alaskan Stations.

HEATING DEGREE DAYS

Table 3

APRIL 1950

State and station	Current season: This month	Current season: Period July through this month	Long term mean: July through this month
ALABAMA			
Birmingham (AP)	211	2239	2587
Mobile	111	1106	1563
Mobile (AP)	123	1266	
Montgomery	141	1544	2061
Montgomery (AP)	170	1728	
ARIZONA			
Flafstaff	553	6020	6582
Phoenix	9	1119	1434
Phoenix (AP)	11	1297	
Prescott	242	3933	
Tucson (AP)	22	1413	
Winslow (AP)	243	4242	
Yuma (AP)	2	849	1035
ARKANSAS			
Ft. Smith (AP)	207	3096	3189
Little Rock (AP)	168	2693	2977
Texarkana	149	2123	
CALIFORNIA			
Bakerfield (AP)	74	2044	
Beaumont	203	2477	
Blue Canyon	498	4908	
Burbank (AP)	103	1610	
Eureka	468	4245	4060
Fresco (AP)	104	2538	2347
Los Angeles	89	1372	1261
Los Angeles (AP)	150	1844	
Mt. Shasta	543	5391	
Oakland (AP)	266	2904	
Red Bluff (AP)	137	2740	2572
Sacramento	127	2509	2358
Sacramento (AP)	156	2822	
Sanberg	340	3711	
San Diego (AP)	127	1441	1429
San Francisco	267	2880	2685
San Francisco (AP)	308	3183	
San Jose	190	2371	
Santa Catalina	220	1955	
Santa Maria (AP)	247	2743	
Bishop (AP)	186	3966	
COLORADO			
Alamosa	672	7527	
Colorado Springs	577	5522	
Denver (AP)	515	5256	5500
Grand Junction (AP)	365	5423	
Pueblo (AP)	418	4827	5334
CONNECTICUT			
Bridgeport (AP)	594	5248	
Hartford (AP)	575	5722	5853
New Haven (AP)	604	5389	5612
DELAWARE			
Wilmington (AP)	494	4630	
DIST. OF COLUMBIA			
Washington	377	3730	4446
Washington (AP)	380	3782	
FLORIDA			
Apalachicola	100	841	1250
Daytona Beach (AP)	118	612	
Fort Myers	33	201	
Jacksonville	94	736	1182
Jacksonville (AP)	114	849	
Key West	3	7	59
Key West (AP)	5	16	
Melbourne (AP)	312	560	
Miami	26	101	185
Miami Beach*	10	34	
Int. Airport, Hialeah	24	83	
Orlando (AP)	64	372	
Pensacola	101	983	1277
Tallahassee (AP)	110	1001	
Tampa (AP)	54	330	571
West Palm Beach (AP)	19	90	
GEORGIA			
Atlanta	229	2537	2950
Atlanta (AP)	217	2448	
Athens (AP)	225	2709	
Augusta (AP)	152	1850	2292
Columbus	192	1913	
Macon (AP)	153	1786	
Rome	266	2893	
Savannah (AP)	138	1333	1629
Valdosta (AP)	124	1159	
Albany	127	1350	
IDAHO			
Boise (AP)	517	5676	5334
Lewiston (AP)	508	5771	
Pocatello (AP)	626	6482	6287
ILLINOIS			
Cairo	277	3465	3893
Chicago	670	5649	5956
Chicago (AP)	699	6074	
Chicago University	702	5837	
Joliet	701	6287	
Moline (AP)	636	6201	
Peoria (AP)	613	5815	5798
Springfield	505	4951	5298
Springfield (AP)	563	5379	
INDIANA			
Evansville (AP)	425	4184	4319
Ft. Wayne (AP)	669	5916	5974
Indianapolis	526	4860	5282
Indianapolis (AP)	575	5185	
South Bend (AP)	712	6181	
Terre Haute (AP)	551	5024	
IOWA			
Burlington (AP)	606	5974	
Charles City	753	7429	7307
Davenport	626	6011	6052
Des Moines	616	6317	6175
Des Moines (AP)	630	6465	
Dubuque	694	6637	6575
Keokuk	557	5619	5509
Sioux City (AP)	662	7052	6663
KANSAS			
Concordia	484	5236	5265
Dodge City (AP)	423	4716	4910
Goodland (AP)	564	5628	
Topeka	427	4818	4946
Topeka (AP)	453	5035	
Wichita (AP)	392	4435	4532
KENTUCKY			
Lexington (AP)	441	4256	4655
Louisville	396	3946	4316
Louisville (AP)	388	3961	
Pikeville	310	4068	
LOUISIANA			
Baton Rouge (AP)	99	1162	1505
Lake Charles (AP)	64	1030	
New Orleans	56	775	1202
New Orleans (AP)	60	838	
Int. Airport, Moisant	74	921	
Shreveport (AP)	198	1807	2122
MAINE			
Caribou (AP)	860	9086	
Eastport	768	7057	7614
Greenville	882	8903	8777
Portland (AP)	718	7026	6865
MARYLAND			
Baltimore	396	3819	4380
Baltimore (AP)	423	4016	
Bethesda*	418	4243	
Dist. Heights*	406	3991	
Frederick	456	4128	
Riverdale*	422	4151	
Takoma Park*	400	4070	4707
MASSACHUSETTS			
Boston (AP)	539	5267	5625
Milton	639	5971	
Nantucket (AP)	660	5201	5388
Pittsfield	745	7009	
MICHIGAN			
Alpena	923	7462	7662
Detroit (AP)	696	6076	6251
Escanaba	981	8109	8130
Grand Rapids			6382
Grand Rapids (AP)	756	6561	
Iron Mountain*	979	8515	
Lansing (AP)	749	6638	
Marquette	972	8116	8031
Muskegon (AP)	797	6626	
Sault Ste Marie(AP)	1064	8814	8605
Traverse City (AP)	901	7396	
Ypsilanti (AP)	702	6176	
MINNESOTA			
Duluth	1009	9232	8974
Duluth (AP)	1071	9808	
International Falls	1060	10651	
Minneapolis (AP)	834	8075	
St. Cloud (AP)	932	9013	8419
St. Paul (AP)	831	8074	
MISSISSIPPI			
Jackson (AP)	155	1729	
Meridian (AP)	173	1877	2312
Vicksburg	133	1666	2059
MISSOURI			
Columbia	454	4637	4936
Columbia (AP)	482	4907	
Kansas City (AP)	433	4700	4842
St. Joseph (AP)	490	5310	
St. Louis	423	4217	4402
St. Louis (AP)	440	4390	
Springfield (AP)	393	4374	4448
MONTANA			
Billings (AP)	665	7231	6792
Butte (AP)	855	8812	
Glasgow	772	8191	
Great Falls (AP)	724	7710	
Havre	712	8915	7942
Helena	726	8048	7325
Kalispell	715	8076	7399
Miles City (AP)			7235
Missoula (AP)	684	7552	7056
NEBRASKA			
Grand Island (AP)	624	6287	
Lincoln	542	5860	5787
Lincoln (AP)	565	6116	
Norfolk (AP)	679	7005	
North Platte (AP)	654	6350	
Omaha (AP)	559	6149	5914
Valentine	788	7210	6836
NEVADA			
Ely (AP)	672	6850	
Reno (AP)	503	5511	5227
Tonopah	425	5077	5449
Winnemucca (AP)	572	5931	5922
Las Vegas	51	2410	2612
NEW HAMPSHIRE			
Concord (AP)	693	7038	6992
Mt. Washington	1354	12278	
NEW JERSEY			
Atlantic City	525	4181	4770
Newark (AP)	490	4743	5309
Trenton	502	4659	5077
NEW MEXICO			
Albuquerque (AP)	195	3802	4421
Clayton (AP)	412	4480	
Roswell (AP)	173	3103	3526
NEW YORK			
Albany (AP)	654	6608	
Bear Mountain	675	6399	
Binghamton	663	6066	6477
Binghamton (AP)	691	6399	
Buffalo (AP)	744	6201	6487
Canton	747	7001	7858
New York	494	4439	5078
Internat'l Airport	530	4715	
LaGuardia Field	501	4961	
Oswego	726	6317	
Rochester (AP)	716	6357	6419
Schenectady	674	6701	
Syracuse (AP)	668	6339	6540
NORTH CAROLINA			
Ashville	368	3550	4107
Ashville (AP)	398	3797	
Charlotte	230	2690	3181
Charlotte (AP)	246	2873	
Greensboro (AP)	300	3443	
Hatteras	238	1869	2519
Raleigh	238	2685	3223
Raleigh (AP)	272	3004	
Wilmington	187	1905	2395
Winston-Salem (AP)	283	3335	
NORTH DAKOTA			
Bismarck (AP)	932	9651	8488
Devils Lake	1007	10472	9548
Fargo (AP)	938	9701	
Grand Forks	1037	10343	9389
Pembina (AP)	1118	11113	
Williston	891	9630	8803
OHIO			
Akron (AP)	712	5939	
Cincinnati	434	4094	4844
Cincinnati (AP)	508	4690	
Cleveland	656	5316	5836
Cleveland (AP)	655	5581	
Columbus	555	4868	5316
Columbus (AP)	573	5092	
Dayton (AP)	594	5278	5226
Sandusky	626	5316	5821
Toledo (AP)	675	5929	5995
Youngstown (AP)	694	5894	
OKLAHOMA			
Oklahoma City	208	3277	3609
Oklahoma City (AP)		227	3405
Tulsa (AP)	239	3485	
OREGON			
Baker	680	6716	6842
Baker (AP)	691	7157	
Burns	554	6832	
Eugene (AP)	480	4779	
Hermiston	804	7351	
Medford (AP)	436	4641	4353
Pendleton (AP)	481	5639	
Portland	425	4339	4008
Portland (AP)	487	4868	
Roseburg	479	4069	3964
Salem (AP)	492	4765	
Troutdale	479	4900	
PENNSYLVANIA			
Allentown (AP)	557	5416	
Curwenville	771	6810	
Erie	700	5550	6011
Harrisburg (AP)	513	4977	5243
Park Place	686	6428	
Philadelphia	463	4200	4607
Philadelphia (AP)	467	4399	
Pittsburgh	524	4723	
Pittsburgh (AP)	566	5096	5459
Reading	487	4689	5065
Scranton	588	5620	5954
Williamsport (AP)	598	5710	5836
RHODE ISLAND			
Block Island	632	4886	5435
Providence	539	5195	5687
Providence (AP)	580	5525	
SOUTH CAROLINA			
Charleston	128	1304	1859
Charleston (AP)	136	1651	
Columbia	154	2054	2469
Columbia (AP)	184	2143	
Greenville (AP)	237	2852	3018
Spartanburg	238	2831	
SOUTH DAKOTA			
Huron (AP)	806	8221	7599
Pierre (AP)	756	7999	6993
Rapid City (AP)	801	7391	6749
Sioux Falls (AP)	807	7966	
TENNESSEE			
Bristol (AP)	397	3695	
Chattanooga	216	2404	
Chattanooga (AP)	254	2872	3198
Knoxville (AP)	298	3125	3599
Memphis (AP)	235	2834	3056
Nashville (AP)	312	3302	3555
TEXAS			
Abilene (AP)	128	2189	2549
Amarillo (AP)	288	3645	4078
Austin (AP)	70	1398	1678
Big Spring (AP)	129	2187	
Brownsville (AP)	0	271	621
Corpus Christi (AP)	14	502	964
Dallas (AP)	132	2076	2352
Del Rio	28	929	1498
El Paso (AP)	42	2136	2517
Ft. Worth (AP)	123	2109	2338
Galveston	30	835	1173
Galveston (AP)	25	646	
Houston	38	852	
Houston (AP)	45	905	1313
Laredo	7	491	
Lubbock	197	3140	
Palestine	104	1630	2057
Port Arthur	41	847	1350
Port Arthur (AP)	54	1061	
San Angelo (AP)	111	1920	
San Antonio (AP)	48	1153	1431
Victoria	23	754	
Wichita Falls (AP)	191	2987	
Waco (AP)	96	1757	
UTAH			
Milford	491	6002	
Salt Lake City	446	5053	5356
Salt Lake City (AP)	488	5497	5761
VERMONT			
Burlington (AP)	736	7231	7606
VIRGINIA			
Alex. Epis. H.S.*	374	3771	
Cape Henry	330	2786	3446
Falls Church*	393	3901	
Lynchburg (AP)	344	3769	3975
Norfolk	283	2674	3297
Norfolk (AP)	309	2929	
Potomac Yards(Alex.)	313	3456	
Richmond	310	3247	3842
Richmond (AP)	327	3482	
Roanoke (AP)	346	3794	
Staunton	341	3359	
WASHINGTON			
Ellensburg (AP)	654	7100	
Kelso	539	5216	
North Head	533	4904	4627
Olympia (AP)	579	5505	
Port Angeles	566	5671	
Seattle	452	4583	4356
Seattle (AP)	473	4836	
Spokane (AP)	629	6988	5915
Stampede Pass	985	8937	
Stevenson	503	5457	
Tacoma	509	4902	4555
Tatoosh Island	581	5561	5053
Walla Walla	420	5215	4668
Yakima (AP)	544	6245	5332
WEST VIRGINIA			
Elkins (AP)	586	5210	5513
Huntington (AP)	329	3605	
Parkersburg	440	4350	4781
WISCONSIN			
Green Bay	881	7955	7513
La Crosse	731	7190	7137
La Crosse (AP)	777	7823	
Madison	756	7066	7065
Madison (AP)	759	7209	
Milwaukee	772	6671	6636
Milwaukee (AP)	767	6751	
WYOMING			
Casper (AP)	722	7059	
Cheyenne (AP)	734	6589	6911
Lander (AP)	690	7135	7678
Rock Springs	682	7158	
Rock Springs (AP)	755	7660	
Sheridan (AP)	716	7502	
ALASKA			
Anchorage (AP)	884	10462	
Annette Island (AP)	725	6929	
Bethel (AP)	1163	11297	
Cordova (AP)	903	9226	
Fairbanks (AP)	1078	13104	
Galena (AP)	1192	13310	
Gambell	1422	11779	
Juneau (AP)	822	8764	
Kotzebue (AP)	1465	13291	
McGrath (AP)	1077	13079	
Northway (AP)	1220	14611	
St. Paul Island(AP)	1037	9033	
Yakutat (AP)	995	8806	

* Data from cooperative stations

The "base" for computing heating degree days is a mean daily outdoor temperature of 65°. Heating degree days are obtained by subtracting the mean daily temperature from this base. Thus, a mean daily temperature of 53° makes 12 heating degree days. If the mean daily outdoor temperature is equal to or greater than 65°, there are no heating degree days. Fuel requirements are related to heating degree days; therefore, a comparison of the cumulated current degree days with the long period averages should show in general whether fuel requirements have been above or below normal.

Table 4 APRIL 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Martinsdale, Mont.	1								Wind	Two chimneys toppled; gas pump globe blown off, and asbestos shingles whipped up. Impossible to walk against gusts.
Woodring Field, (3 miles east of Enid), Okla.	2	2:45 - 3:30 p.m.	†1	5-10			$2,000		Hail	Damage to six private airplanes and plane shed.
Tuckerman (1 mile northwest of), Ark.	2	3 p.m.		2 1/2	1	4	8,300	$250	Tornado	Path northeastward. One home completely destroyed and one unroofed. Five barns, 1 hay shed, 2 garages, and 10 tons of hay destroyed. One serious injury.
Stillwater, Payne County, Okla.	2	3 - 4 p.m.					900,000	25,000	Hail	Four mile area around Stillwater suffered severe property damage to buildings and automobiles. Damage at Oklahoma A & M College to tile roofs, and greenhouses estimated at $250,000. Hail 1 1/2 to 2 1/2 inches in diameter.
Yarbro, Mississippi County, Ark.	2	6 p.m.	100	3/4	0	0	6,000		Tornado	Path eastward. Two houses heavily damaged. Considerable damage to farm buildings, power and telephone lines, and sign boards. Some small hail.
Carney, Lincoln County, Okla.	2	6 - 6:20 p.m.	100		0	0	7,375		Tornado, wind, and hail	Path southeastward. Funnel dropped to ground three times. Vortex very narrow. High pitched roar. Debris observed flying high in air. No injuries as most persons in storm cellars. Damage by tornado $7,000, wind $300, and hail $75; included in total.
Seminole County, (northern portion), Okla.	2	6:30 - 8:10 p.m.					50,000		Hail	Property damage to automobiles and roofs. Some hail up to 3 1/2 inches in diameter.
Stroud, Lincoln County, Okla.	2	6:55 - 7:05 p.m.	†1			2	75,000		Wind and hail	Path southeastward. Damage by wind $72,000; hail $3,000; included in total.
Bristow, Creek County, Okla.	2	7- 7:18 p.m.	880	1			50,000		Hail	Many roofs and windows damaged. Hail 1 inch in diameter.
Pottawatomie County (northern portion) Okla.	2	7:15 - 8:10 p.m.		8			300,000	43,000	Hail and wind	Path southward.
Evansville, Ind.	3	2:15 a.m.					100,000		Electrical	Large church practically destroyed by lightning-set fire.
Harvey Young Airport, Tulsa County, Okla.	3	4:15 p.m.	33	1	0	0	2,000		Tornado	Damage to one airplane.
Alton-Bethalto area, Ill.	3	6:43 p.m.	400	7		5	100,000		Wind	Many buildings badly damaged in east end of Alton. Two school buildings and several homes damaged at Bethalto. Storm moved east-northeastward.
Grove Spring, Mo.	3	7 p.m.	440	1	0	0	500		Tornado	Slight damage to four farm homes.
Rolla, Mo.	3	11:15 p.m.							Hail	Storm lasted about one minute; caused considerable damage in immediate vicinity of Rolla. About 2,000 homes damaged. Rooftops and window glass hardest hit. Neon lights and automobile tops also damaged. Largest hailstones described as size of golf balls.
Barnhart, Mo.	3	Evening			1				Flash flood	A man drowned while attempting to secure aid for his wife and 7 children trapped by a rapid overflow resulting from a flash thunderstorm.
Barea (about 3 miles northwest of Greenville), S.C.	4	10:30 p.m.					10,000		Winds	Storm moved southeastward.
Opheim, Mont.	6,7,8								Blizzard	All roads blocked.
Oshkosh (near), Wisc.	7	Night	†6						Ice Floes	Strong northeasterly winds pushed large blocks of ice onto west shore of Lake Winnebago. Bath and boat houses crushed, a couple of homes damaged and trees broken. Ice piled on shore to height of 50 feet.

Table 4—Continued

APRIL 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Cape Cod and Nantucket Waters, Mass.	7-8	Midnight			18				Northeast gales, heavy seas, and snow	Wave disturbance, moving along a trough of low pressure off Atlantic Coast, developed great intensity off Cape Cod and Nantucket; disastrous to fishing and dragging craft. A scallop sloop, with an 8-man crew, and another, with 10 men, were overwhelmed by raging seas built up by long continued easterly gales. All hands lost. Other vessels damaged but limped into port. Reported as worst April storm in 77 years. No estimate of damage.
Los Angeles (east of), Calif.	8	Early forenoon	100	1 1/2	0	0	$10,000		Probable tornado	Path northward. Tin roofs torn from several large buildings; other buildings and power lines damaged by flying debris.
Iowa (northeastern portion)	8-9	Night of 8th to mid-day of 9th			2	1			Wind and ice	Steady rain, light to moderate winds, and below freezing temperatures. Ice coated all objects, resulting in broken wires and toppled trees. Most ice confined to area bounded by Highway #6 on south and Highway #69 on west. Center of severe icing was Clinton County, especially City of Clinton which suffered losses estimated above 1 million dollars. At Clinton, Iowa National Guard called out to clear away wreckage left by one of worst ice storms in its history. Clinton alone had over 1,400 phones out of order and total damage to telephone company property estimated at $200,000. Three major industries forced to cease operations from lack of power. Electric service not completely re-established until 14th. Elsewhere in northeastern Iowa some 125 towns cut off from phone service when 800 toll lines broken. Electric power off in many other towns. Since temperatures moderated following day, chief hazard to driving was tree-blocked roads. Literally thousands of trees broken or toppled in Clinton area from weight of ice. Due to late spring, little or no crop damage.
Grace and vicinity, Idaho	8-9								Wind	Wind from west and northwest caused considerable damage to an airplane, granaries, and other light buildings.
Minnesota, west-central, southwestern and extreme southern counties	8-10				3		125,000		Ice (glaze), sleet, snow, and wind	Many poles and wires down. Communication and electric power services seriously disrupted. Branches of trees broken off. Traffic delayed. Some highways and roads blocked. A number of traffic accidents occurred, three fatalities resulted.
Colorado, eastern portion	9	Early a.m. to Late p.m.					2,000	$5,000	Winds	Strong winds swept the eastern plains, with speeds of 40 to 70 m.p.h. Damage mostly to spring crops from blowing soil, which also reduced visibility in many sections. Some damage to buildings.
Illinois, northern portion	9	All day	†50	150	4		1,500,000		Ice (glaze)	Heavy freezing rain deposited a thick ice coating in area from Carroll, Whiteside, and northern Rock Island Counties across State to Will and Kankakee Counties. Damage to power and communication lines especially heavy; several days required for complete restoration of services. Thousands of trees downed or ruined. Four persons killed in auto accidents resulting from icy streets and highways.
Kansas, western two-thirds	9	Afternoon and night							Winds and blowing dust	Higher winds reached 68 m.p.h. in gusts at Hutchinson, and 57 m.p.h. with strong gusts at Garden City. Peak speeds near 45 m.p.h. with strong gusts more representative. Visibilities occasionally lowered to 2 miles. Crops damaged.
Indiana, northern portion	9								Ice (glaze)	Wires down in many areas. Telephone service out for many days in some sections. Damage in thousands of dollars.
St. Louis, Mo.	10	5:30 p.m.				1			Line squall	Several communication poles snapped, and a few brick firewalls blown over. One child injured slightly by flying board. Several lightning strikes caused minor damage, but no large fires resulted.
Kansas, entire state	10	During day							Winds and blowing dust	Severe blowing dust in all sections. Winds generally rose to near 50 m.p.h., with strong gusts. Visibilities ranged down to between 1/4 and 3/4 mile over many areas with much more severe conditions locally in scattered localities. Storm worst of season at Hays. Relatively little property loss reported. Previous soil blowing areas enlarged and accumulative effects of storm on crops marked.
South Dakota	10				2				Wind and snow	Automobile accident caused two deaths. Barometer dropped to a low station pressure of 28.06 inches at Huron, causing wind and an average of 3 inches of snow to blow and drift. Temperature not severe but unusual lateness in season resulted in some damage to livestock. Accumulation of ice on communication lines caused them to come down.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Mobile, Ala.	18	1:30 a.m.	100	12 1/2	0	15	$235,000		Tornado	First hit in Wragg Swamp, lifted 12 miles later. Moved north-northeastward with a slight curvature of path becoming more northeastward. Passed within 1/2 mile of the Spring Hill seismograph, causing an abrupt vibration which lasted for 1 minute and 13 seconds. Eleven houses and a building materials warehouse destroyed, and other buildings damaged.
Spanish Fort settlement, Baldwin County, Ala.	18	1:45 a.m.	150	2	0	0	15,000		Probable tornado	Moved north-northeastward. Fallen trees indicated straight winds, but the narrow path suggests that damage area was possibly in right hand side of a large and weak tornado. One house and three other buildings damaged.
Caledonia County, Vt., Coos County, N.H., Washington County, Me.	20-23								Rain	Ice-jams caused by rapidly melting snow in headwater augmented by heavy rains, flooded Pasumpsic River in Vermont, Israel River in New Hampshire, and St. Croix and many other rivers in Maine. Some of the latter reported highest levels since 1936.
Swayzee, Ind.	22	10:30 p.m.	†6-8				3,000		Hail	Hailstones up to 1 1/4 inches in diameter broke windo and damaged roofs. Moved eastward.
Libby, Mont.	22								Wind	An approximate 50 m.p.h. wind blew down considerable timber.
Rockville, Ind.	23	2:20 p.m.	440	1			700		do	Residences damaged and trees downed.
Putnam County, Ind.	23	3:30 p.m.		10		few	100,000		Wind and hail	Damage at Fincastle, Roachdale, Bainbridge, Grovelan Hail up to 1 1/2 inches in diameter.
Robstown, Nueces County, Tex.	23	8:30 p.m.	†2					$500	Hail	Cotton destroyed; must be replanted.
Granger and southern Cass Counties, Ind.	23	9 p.m.					5,000		Wind	Buildings unroofed; trees and wires down. Moved eas ward.
Montrose (near) Randolph County. W. Va.	23	9 p.m.							Tornadic	High winds, said to have accompanied a "small tornad wrecked several farm buildings and injured livestoc section of hotel roof blown off and other minor dam reported. Storm moved southwestward.
O'Hare Airport, Park Ridge, Ill.	23	Night					50,000		Wind	Twenty-six military aircraft damaged by winds which reached speeds of over 80 m.p.h.
Iowa, scattered sections eastern half	23-24	Night of 23d and early morning of 24th.							Wind and hail	In Hardin County near Eldora, strong winds destroyed several barns and smaller buildings. Brief period of hail, size of walnuts, caused additional damage. In Monroe County near Albia, strong and gusty winds ripped 4 large steel grain bins from their foundations; other minor damage also reported. At Calmar Winneshiek County, a heavy downpour of rain caused considerable washing and soil erosion.
Montana, eastern border counties	23-24								Rain, changing to snow	Heavy precipitation and cold weather hard on new lam and calves; moderate losses reported.
Illinois, northern half	23-25						1,000,000		Rain	Heavy rains, totaling over 4 inches in many areas, flooded homes, basements, streets, and highways. Som railroad lines also washed out. Damage in Waukegan estimated at $250,000; Stone Park (Cook County) and North Chicago (Lake County) each $100,000. Starved Rock State Park partially under water; $4,000 damage at golf course in Ottawa. Many rivers and streams out of their banks. Newly-worked farm land badly washed, and field work halted.
Donaldsonville, La.	24	7:45 a.m.	100		0	0	20,000	slight	Tornado	Followed path of tornado in March. Greatest damage to church.
South Dakota	24-25								Wind, rain and snow	Damage mostly due to driving accidents. Young livestock suffered.
Wisconsin, northwestern portion	24-25								Snow	An unusually heavy late-season snowstorm and winds of 50 to 60 m.p.h. caused much disruption to highway traffic. Many schools closed for a day.
Laurel, Miss.	25	2:30 p.m.					5,000	10,000	Hail	Very little wind.
Ozelle to Morven, Brooks County, Ga.	27	2:30 p.m.	†2	30			2,000	25,000	do	Storm moved east-northeastward in northern Brooks Cou ty. Some hailstones weighed 1/4 to 1/2 pound each. Heaviest damage in Barwick and Okapilco Communities. One home suffered damage of $1,500, and a tobacco barn $500. Fields of tobacco, cotton, grain, and vegetables heavily damaged.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Moncks Corner and vicinity, S.C.	27	2:30-3:30 p.m.	300		0	0	$25,000	Considerable	Hail and tornadic winds	Squalls and winds of tornadic violence destroyed or damaged about 17 structures. Considerable but undetermined damage to upcoming plants from hail which accompanied storm. Stones as large or larger than hens' eggs reported to have fallen steadily for about 23 minutes. Storm moved westward.
Columbia, S.C.	27	3:30 p.m.					500	Considerable	Hail and electrical	Property damage caused by lightning. Considerable but undetermined damage to young, upcoming plants by hail. Stones up to 2 1/2" in diameter.
Milstead, Macon County, Ala.	27	4:30 p.m.							Hail	Moderate hail, with many stones 1 inch in diameter, and a few up to 2 inches.
Crescent City, Fla.	27	4:45-6 p.m.					5,000	$50,000	Hail and wind	Hailstones from 1/2 to 1 1/2 inches in diameter accumulated in drifts up to 3 feet deep. Wind speed estimated at 60 m.p.h. Major crop damage to citrus. Property damage included neon signs, power and telephone lines, roofs, trees, and automobiles, amounting to $3,000 by hail and $2,000 by wind.
Colquitt, Miller County, Ga.	27	Midafternoon					500	5,000	Hail	Storm moved northeastward, affecting small area around Colquitt. Storm lasted for about 45 minutes, leaving hailstones up to 2 inches in diameter. Numerous window panes and house roofs damaged.
Newton, Baker County, Ga.	27	do	†3				500	7,500	do	Storm moved northeastward, affecting two or more local areas around Newton. A few cabbage fields badly damaged, and many fields of lupine stripped to bare stalks. Many window panes broken, roof of a house heavily damaged. Some chickens killed and a cow injured.
Washington (and vicinity), D.C.	27-28	10 p.m.-1 a.m.				6			Electrical	Several minor fires started by lightning; 2 persons injured by lightning, 4 firemen overcome by smoke while fighting fire. Several electrical transformers burned out.
Montana, Counties on east slope of Continental Divide, along Big and Little Belt, and south-central mountains.	27,28, 29							25,000	Rain, changing to heavy snow	Cold, wet precipitation caused loss of over a thousand lambs in one community. Snowfall over 24 inches in many sections; many roads blocked by heavy drifting.
Still Pond, Kent County, Md.	28	A.m.							Electrical	Fire completely destroyed barn after lightning strike.
Kiowa and Washita Counties, Okla.	28	2:17 - 2:51 p.m.	150 to 600	20	1	1	100,000		Tornado	Path northeastward, turning north-northeastward to north. It extended from 15 miles southwest of Hobart Airport, at Lake Lugert, to near Lone Wolf and to near Sentinel. As many as three tornado columns observed at one time. CAA airways observer reported column turning counter-clockwise. Forward rate of movement 30 to 35 m.p.h. Downpour of rain appeared to follow dissipation of column; accompanied by hail. 17 families affected; 5 homes totally damaged, 3 suffered major damage, and 3 with minor damage.
Pasquotank County, (central portion) N.C.	28	2:30 p.m.					1,250	8,800	Hail	Covered area of 4 square miles.
Perquimans County, (eastern portion) N.C.	28	3:30 p.m.						6,000	do	Covered area of 50 square miles.
St. Louis, Mo.	28	4:30 p.m.							Electrical and wind	Several streetcars struck by lightning and heavy winds caused minor damage. Several telephone poles also downed by strong wind.
Coffey County, Kans.	28	Afternoon	†1 1/2	20	0	0	30,000		Tornadoes	Several funnel clouds observed and damage in various parts of county. Some moved northeastward and others followed an eastward path. Barns and smaller buildings damaged or destroyed. Numerous trees twisted out of ground. Two small funnel clouds observed simultaneously west of Burlington.
Abilene, Tex.	28	6 p.m.	†1	3			100,000		Hail	House roofs and cars dented; neon signs destroyed.
Clyde, Callahan County, Tex.	28	6 p.m.	250	5	5	1	58,800	15,000	Tornado and hail	Crop damage due to hail. Tornado moved north-northeastward. Complete destruction in path of tornado.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Holdenville and vicinity, Hughes County, Okla.	28	7:05 p.m.	200	4	5	32	$500,000		Tornado	Path northeastward through Holdenville. 38 homes destroyed; 188 partly destroyed.
Cottonwood community 1 1/2 miles northeast of Colgate, Coal County, Okla.	28	7:30 p.m.	100	3/4	0	0	10,000		do	Destroyed two houses, five barns, and one car.
Nash County (central portion), N.C.	28	7:30 p.m.						$5,000	Hail	Covered area of 2 square miles.
Lincoln County, Miss.	29	10:30 a.m.					5,000	slight	Wind	
Woodville-Liberty, Miss.	29	11 a.m.-1 p.m.		35			50,000		do	Timber and power and communication lines destroyed.
Columbia and vicinity, Marion County, Miss.	29	12-2 p.m.	100	10	0	0	105,000	slight	Tornado	Six buildings destroyed; 225 damaged.
Comanche, Comanche County, Tex.	29	3:30 p.m.	220	20	0	0	60,000	3,000	Tornado and hail	Damage by hail, $600; tornado, $62,400; included in total. Storm moved southward. Path through ranches and dairy farms where very little crops, but much livestock.
Lake Texhoma, Bryan County, Okla.	29	7:32 p.m.			1	1			Electrical	Lightning bolt struck, killing one man and injuring another in a boat on Lake Texhoma.
Copiah County, Miss.	29		†10	20			20,000	750,000	Hail	Passed through important commercial trucking area. Destroyed and damaged cabbage almost ready for market; damaged young tomato plants and buds.
Claiborne Parish, La.	29						1,000	slight	do	
South Dakota	29								Snow	Snow accumulated to average depth of 6 inches, with 12 to 17 inches locally; some young livestock loss.

† Miles instead of yards.

LATE STORM REPORT FOR MARCH 1950

Pennsylvania, central portion	Mar. 20 to 24						286,000		Snow	Damage to Pennsylvania Railroad from Perdix to McVeytown, $68,000; from Clarks Ferry to Renovo, Williamsport to Canton, Sunbury to Mt. Carmel, and Sunbury to Nescopeck, $200,000; from Camp Hill, Pa. to Winchester, Va., $18,000.

PRELIMINARY TOTALS BY STORM TYPES FOR APRIL 1950

Type	Deaths	Injuries	Damage
Tornado	12	53	$ 1,195,250
Wind	2	9	573,500
Hail			2,221,225
Electrical	1	7	100,500
Ice	7		1,625,000
Rain	19		1,000,000
Snow	2		25,000
Total	43	69	$ 6,740,475

RIVER STAGES AND FLOODS
APRIL 1950

Severe flooding occurred during the month along the Red River of the North from the confluence of the Bois des Sioux and Ottertail Rivers to the Canadian border. The crest of 43.9 feet at Grand Forks, N. Dak., was the highest stage at that point during the past 50 years, and the crest of 51.7 feet at Pembina, N. Dak., on Apr. 30 was the highest stage of record. The Red of North was rising again near the close of the month at Grand Forks with the second crests during May generally the highest in the past 100 years.

In the St. Lawrence drainage the St. Joseph River reached a record stage at Montpelier, Ohio. Near record stages occurred in the extreme Upper Mississippi at Aitkin and Fort Ripley, Minn. In the Missouri Basin severe flooding occurred along the Cannonball and Grand Rivers in the Dakotas. The ice break-up along the main stem of the Missouri continued in an orderly manner and progressed upstream to Bismarck, N. Dak., during the first half of the month.

HUDSON BAY DRAINAGE.--The record flooding of the Red River of the North this spring was due to a combination of several factors, namely, heavy snowfall accumulation during the winter, late break-up or prolonged cold weather in the spring and moderate to heavy precipitation near the time of break-up. Early freezeup in the fall before snow occurs is also a contributing factor to produce flood conditions in the spring but last fall the freezeup was not early and the snow that fell during November melted by the end of the month. The cold weather early in December, however, caused deep frost penetration in the ground before new snow occurred so the effect was similar to an early freezeup.

A snow survey by the U.S. Army Engineers from Feb.12-18, showed the water equivalent of the snow cover in the upper portion of the basin during that period to be less than an inch, and in the northern portion from 2 to 3 inches. Warm weather during the first 6 days of March melted much of the snow cover over the south and central portions of the basin.

Severe weather with abnormally cold temperatures occurred during the remainder of March. This severe weather was accompanied by additional snow in northeastern North Dakota and northwestern Minnesota. On Mar. 26-27 the precipitation averaged over 1.25 inches at 11 reporting points in that area. A snow survey in March before this last storm showed more moisture than in February with the 3 inch isohyetal line oriented in an east-west direction just north of Fargo-Moorhead. The water equivalent of the snow cover over the northern portion of the basin averaged between 4 and 5 inches.

Flooding began along the Red River of the North at Wahpeton, N. Dak., and Fargo-Moorhead on Mar. 31, spreading downstream to Grand Forks, N. Dak., by Apr. 10. It reached a crest of 11.92 feet at Wahpeton, N. Dak., on Apr. 2, 1.2 feet higher than the previous record stage of April 1943.

The crest moved downstream about 14 miles per day in the reach above Moorhead reaching Fargo-Moorhead on Apr. 8 at a stage of 27.2 feet. In the reach between Moorhead and Grand Forks, N. Dak., the crest movement slowed down to less than 10 miles per day reaching Grand Forks on Apr. 25 at a stage of 43.9 feet, the highest level since 1897. Red Lake River, a tributary of the Red on the Minnesota side above Grand Forks, reached a crest of 24 feet at Crookston on Apr. 23. The dikes at Crookston were overtopped causing water to flow across the city in low areas. Approximately 75 city blocks of the residential area of Crookston were inundated and about 150 families evacuated. The flood moved downstream to the international boundary by the end of the month, reaching a stage of 51.7 feet at Pembina, N. Dak., the highest stage in the history of the station.

The Red of North was rising again in the upper portion on the last day of the month with crests in May higher at all points than in April except at Fargo-Moorhead and generally the highest in the last 100 years.

The most unusual feature of the April rises, aside from reaching near record to record stages was that ice was still in the river after the crests had passed, remaining to cause trouble during the later and higher crests in May, particularly at Crookston and Thief River Falls, Minn.

ST. LAWRENCE DRAINAGE.--Moderate to heavy rains occurred over the St. Lawrence drainage during the first 4 days of April causing overflows in several streams in the Lake Michigan, Lake Huron and Lake Erie drainage areas. During the period precipitation averaged 1.36 inches in the upper Grand, 2.25 inches in the lower Grand and 0.9 inch in the Saginaw Basin. The runoff from these rains was greater than usual as the ground was saturated due to the moderately heavy rains from Mar. 26-28. Flooding was mostly light except in the St. Joseph Valley in the Lake Erie drainage where Montpelier, Ohio, reported 16.0 feet, the highest recorded stage in the history of the station. Roads and even paved highways suffered damage and the agricultural loss in the immediate vicinity was considerable.

Severe local flooding occurred in Wisconsin on the Bad and White Rivers draining into Lake Superior between the 18th and 20th due to snow melt and ice gorges.

ATLANTIC SLOPE DRAINAGE.--Minor flooding occurred in several streams in Maine on the 21st and 22d due to heavy rain and snow melt. River flows during the first half of April had been slightly below normal. Warmer weather beginning on the 15th had speeded up snow melt so streams were near normal when the heavy rains began around noon on the 20th. Two to three inches of rain occurred in the Kennebec and Androscoggin Rivers, mostly in the snow covered headwater sections during the following 19 hours. Small amounts occurred over the Saco and Penobscot Basins.

Maximum flow on the Androscoggin at Lewiston and the Kennebec at Skowhegan was almost 50,000 second feet on the 22d, the greatest flow since the flood of 1936. Light damage occurred along the Androscoggin and Kennebec Rivers.

This same storm in combination with snow melt caused minor flooding in the Merrimack River Basin and tributaries during the same period. Rainfall averaged slightly over 2 inches in headwater areas and from 1 to 1.5 inches elsewhere. A snow survey made just prior to the flood showed an average of 6 inches of water on the higher elevations of the drainage area above Plymouth, N. H. Overflows occurred at scattered low points on the Pemigewasset and on the Merrimack above Concord, N. H. Damage was small and restricted to small stretches of highway between Plymouth, N. H., and Franconia Notch.

There were two widely separated and distinct rises in the Connecticut River Basin during April, one occurring early in the month due primarily to snow melt and the second, late in the month, due mostly to rainfall. No damaging flooding

occurred except at Lancaster, N. H., where an ice jam on the Israel River caused water to back up, resulting in serious flooding of the town. Minor lowland overflow occurred at several of the lowest areas along the main stem of the Connecticut River. The snow cover over the basin averaged above normal in the beginning of the month despite the nearly complete absence of snow at the lower elevations. Snow depths ranged from 5 to 15 inches (water content 2 to 3 inches) in the woods of western Massachusetts to 20 to 30 inches (water content 5 to 7 inches) in the woods at the higher elevations of Vermont, to 25 to 35 inches (water content 7 to 9 inches) in extreme northern New Hampshire. About one-half the entire drainage area had no snow and about one-fourth had over 4 inches.

Minor flooding occurred in the Susquehanna River Basin early in the month due to snow melt and rainfall. In the extreme northern portion of the Susquehanna and Chenango Basins, snow on the northern slopes and in forest areas ranged from 7 inches to 20-foot drifts. Runoff above Towanda, Pa., from the 4th to the 7th, totalled about 2.5 inches. Rainfall averaged nearly 0.75 inch from the 2d to the 4th over the North Branch of the Susquehanna and over the rest of the basin it was considerably lighter.

EAST GULF OF MEXICO DRAINAGE.--The Tombigbee and Pearl Rivers that went above flood stage near the middle of last month receded to within their banks during the first decade of the month. Locally heavy rains, near the end of the month over the upper Warrior caused a sharp rise at the upper stations but no flooding occurred.

UPPER MISSISSIPPI BASIN.--The annual spring break-up in the extreme Upper Mississippi Basin between Sandy Lake Dam and Little Falls, Minn., was more severe than in recent years because of the greater snow depth. In this flood the main stem of the Mississippi reached near record crests at Aitkin (16.3 feet, May 8) and Fort Ripley, Minn. (12.4 feet, Apr. 20). The maximum known stage at Aitkin was 17.0 feet in June 1888 and at Fort Ripley, 12.8 feet in July 1905. Approximately 40,000 acres were inundated in Aitkin County and some farms had to be evacuated.

Light flooding occurred on the Wisconsin River at Merrill, Wis., on the 19th and on the Chippewa River at Durand, Wis., on the 21st due to a gradual melting of the snow cover. A near record flood volume occurred on the lower St. Croix River between St. Croix Falls, Wis., and Stillwater, Minn., due to the melting of deep snow cover in extreme northwestern Wisconsin. These tributary floods naturally increased the volume of flow in the Mississippi resulting in near flood stages between Hastings, Minn., and La Crosse, Wis.

The Rock River receded below flood stage at Moline, Ill., on the 7th. Heavy rains (1 to 1.5 inches) from the 8th to the 10th caused another rise to near bank-full stage on the 13th. The biggest rise at Moline occurred due to the rains (1.5 to 2 inches) from the 23d to the 25th when a crest of 11.7 feet was reached.

Heavy rains (1.25 inches) over the Illinois River Basin during the 24-hour period ending on the morning of the 4th caused overflows along the entire river. Additional heavy rains (1.5 inches) occurred in the upper reaches of the basin on the 10th. The lower Illinois was still in flood when torrential rains (3.5 inches) occurred over the basin between the 23d and 25th. Considerable overflow resulted from the last rain but the damage to crops was not too great due to the season. Heavy rains (2.5 inches) also occurred over the Meramec and tributaries on the 3d and 4th resulting in bank-full stages but no serious flooding.

Flooding occurred along the main stem of the Mississippi River between Keokuk, Iowa, and Grafton, Ill., and at scattered points above early in the month and again towards the end of April. The first flooding was due mainly to snow melt plus rather heavy rains, while the second period of overflows was due mainly to excessive rains with some amounts near 5 inches. Severe flooding occurred in the Gulfport-Oquawka-Biggsville area in Illinois across the Mississippi from Burlington, Iowa, from Apr. 25 to May 5th due to a break in the Henderson Creek levee. Many homes were flooded, stored crops spoiled and some livestock drowned. The heavy rains which totalled 5.28 inches at Dam 18 caused high waters in Henderson Creek. The break in the levee was entirely responsible for the damage, as the stage at Burlington never reached flood stage. Many people were evacuated from their homes and all streets in Gulfport were under water. Highway 34 was sandbagged and one lane remained open throughout the high water but local roads became impassable in low spots.

MISSOURI BASIN.--The floods in the upper Missouri Basin in the Dakotas during April resulted mostly from the melting of the dense heavy snow cover and the break-up of ice in the streams. Heavy snowfall occurred during the late winter and early spring months over North Dakota and northwestern South Dakota. Temperatures averaged considerably below normal over most of the northern plains during this same period and the ice break-up and spring thaw came one to two weeks later than usual.

Flooding along the Little Missouri River which flows into the Missouri River at Elbowoods, N. Dak., was light. Heavier flooding occurred along the Knife River at and below Beulah, N. Dak., and the stage at Beulah was believed to be the highest of record. A stage of 16.0 feet was reached at Hazen, N. Dak., on the 17th which was slightly below the record stage of 16.3 feet established in March 1943. A record stage of 28.2 feet occurred on the Heart River at Richardton, N. Dak., on the 16th which was 2.2 feet higher than the previous record stage of 26 feet. The runoff from the Heart River was the greatest of record but the flooding was less severe than in previous years, especially at Mandan, N. Dak., because of the construction of a large dam south of Glen Ullin and the construction of higher dikes. The greatest loss along the Heart River and its tributaries was the flooding of the village of Almont on the Big Muddy Creek, the loss of a railway bridge near Gladstone, N. Dak., and the inundation of the highway between Mandan, N. Dak., and the Missouri. Only light damage resulted from the flooding along Apple and Beaver Creeks, tributaries on the east side of the Missouri River.

A minor overflow occurred along the James River below Huron, S. Dak., during the first three weeks of April due to snow melt and ice break-up in the reach between Aberdeen and Huron. No damages resulted from this overflow.

Severe flooding occurred along the Cannonball and Grand Rivers, tributaries of the Missouri, between Bismarck, N. Dak., and Pierre, S. Dak., between the 15th and 20th due to snow melt. Older residents along the Grand River judged that the Grand was the highest that it had been in the last 60 years. There was some flooding along the Moreau River in northwestern South Dakota. Flood damages were quite severe along the Cannonball and Grand Rivers.

The Grand River at Brunswick, Mo., exceeded flood stage slightly on the last day of April and the first two days of May

due to backwater from the Missouri River. The Lamine River exceeded flood stage at Clifton City, Mo., by over 4 feet on the 29th due to heavy rains (2 inches).

The ice break-up along the main stem of the Missouri progressed upstream during the first half of the month from about 30 miles north of Chamberlain, S. Dak., to Bismarck, N. Dak. The ice break-up was orderly with only minor rises and no flooding. The ice broke up at Pierre, S. Dak., on the 2d, Mobridge, S. Dak., on the 6th, Fort Yates on the 13th and Bismarck, N. Dak., on the 15th. The main stem of the Missouri rose steadily during the heavy rises in the tributary streams in the Dakotas, caused by snow melt. Snow surveys made during the first ten days of April showed a heavy accumulation of coarse granular snow in western North Dakota and southwestern South Dakota with the water equivalent of the snow ranging from 3 to 6 inches. The crest travelled from Bismarck, N. Dak., on the 18th to Sioux City, Iowa, on the 25th, causing overflows as it moved downstream to the mouth near the end of the month and the first part of May. The flood along the main stem was comparable to the flood of April 1943, although from Yankton, S. Dak., upstream, stages were generally 1 to 2 feet lower. The crest at Sioux City, Iowa, was 0.3 foot lower than in the flood of 1943.

OHIO BASIN.--Generally light rains occurred over the upper Ohio Valley from the 1st to the 4th, averaging between 0.5 and 0.75 inch over the Allegheny Basin above Franklin, Pa., on the 2d. This rain plus high temperatures on the 3d and 4th caused the remains of the winter's accumulation of snow in the extreme headwaters of the Allegheny Basin to run off resulting in significant flooding on the Allegheny at Olean, N. Y., and light flooding below. Rainfall in the upper Hocking Basin was heavier and averaged 1.85 inches from the 2d to the 5th causing overflows at Enterprise, Ohio. Rainfall in the Scioto Basin in Ohio averaged 1.5 inches causing mostly light overflow at scattered points. In the Green River Basin rainfall averaged 1.5 inches in the middle and lower reaches and 3.5 inches over the upper portion causing some flooding at Rumsey, Ky.

Floods in the Wabash and White Basins were frequent during the month, but not severe. These frequent overflows were largely the result of ground water drainage from the excessive rains during the first quarter of the year which maintained the rivers near bank-full stage. The major effect of the rains during the first five days was the continuance of high stages as the heavier amounts were confined mostly to the lower portions where the stages had started to recede. Heavy rains beginning on the 10th and 22d occurred in the upper portions and produced moderate flood stages.

The rains which occurred during the first few days of the month along the Ohio and Upper Mississippi River Basins were rather heavy and caused rises to above bank-full stage at and below Tell City, Ind. The flooding was light.

WHITE AND RED BASINS.--Slight flooding occurred in the upper Black River Basin at Poplar Bluff, Mo., from the 4th to the 5th due to moderate to locally heavy rains. At Black Rock, Ark., the river continued above flood stage from the previous month through the 20th. This high water at Black Rock was not due to rainfall during April but to continued high water on the White. The lower White River continued at high stages throughout the month due to high water from previous months. Flood damage during April was slight.

The Ouachita at Monroe, La., and the Black at Jonesville, La., receded to below flood stage during the last half of the month. The Ouachita had been in continuous flood since January and the Black since Feb. 4th.

LOWER MISSISSIPPI BASIN.--The Tallahatchie and Yazoo Rivers receded to below flood stage at all points except at Yazoo City, Miss. There were no rises along these streams during the month.

The St. Francis River rose to above bank-full stage at St. Francis, Ark., on the 1st due to the heavy rains that occurred on Mar. 27th and 28th. Moderate to heavy rains occurred in the middle portion of the basin again on the 3d and 4th. Rains in the extreme upper portion of the basin and in the lower half were relatively small and contributed little to the flood.

The only station along the Mississippi below the mouth of the Ohio River to exceed flood stage during April was Caruthersville, Mo. This rise was due to heavy rain that occurred in the middle Mississippi and lower Ohio areas on the 3d. The rainfall averaged almost 3 inches from Cape Girardeau, Mo., to above Evansville, Ind. Decreasing amounts of rainfall were reported on the 4th and 5th.

ATCHAFALAYA BASIN.--The Atchafalaya continued in flood at Atchafalaya, La., throughout the month and at Morgan City, La., intermittently throughout April.

WEST GULF OF MEXICO DRAINAGE.--Minor flooding occurred on the Sabine at Mineola, Tex., between the 21st and 26th due to heavy rains (1.5 inches) between the 16th and 19th. Willis Point, Tex., reported 4.16 inches of rainfall during that period. Moderate rises occurred downstream. The Sabine and Calcasieu Rivers were rising and near bank-full stage towards the end of the month due to heavy rains on the 29th and 30th.

Some flooding occurred on the Trinity River due to rainfall between the 13th and the 20th. Rainfall in the lower Trinity during the period averaged 3.04 inches. The only loss reported was the loss of wages due to the suspension of activities in the South Liberty oil field.

FLOOD STAGE REPORT

(All dates in April unless otherwise specified)

Table 5

APRIL 1950

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			*Ft.*	
HUDSON BAY DRAINAGE					
Red of North:					
Breckenridge, Minn.	6	Mar. 31	19	11.9	3
Moorhead, Minn.	17	Mar. 31	20	27.2	8
Grand Forks, N. Dak.	30	7	†	‡43.9	25
ST. LAWRENCE DRAINAGE					
Lake Michigan					
Red Cedar:					
Williamston, Mich.	7	4	6	8.7	4
East Lansing, Mich.	8	4	7	9.8	5
Grand:					
Eaton Rapids, Mich.	6	4	7	7.0	5
Lansing, Mich.	11	4	7	12.7	5
Ionia, Mich.	21	5	7	21.7	5
Lowell, Mich.	15	5	8	16.4	6
Lake Huron					
Shiawassee: Owosso, Mich.	7	4	5	8.4	4
Flint: Flint, Mich.	11	4	4	11.1	4
Pine: Alma, Mich.	9	4	4	9.2	4
Saginaw: Saginaw, Mich.	19	4	8	20.6	6
Lake Erie					
St. Marys: Decatur, Ind.	13	4	5	13.4	4
		24	25	13.4	24
St. Joseph: Montpelier, Ohio	10	Mar. 23	13	16.0	5
		24	30	15.8	25
Maumee:					
Fort Wayne, Ind.	15	4	9	19.0	6
		11	12	16.9	11
Defiance, Ohio	10	5	6	10.3	6
ATLANTIC SLOPE DRAINAGE					
Bakers: West Rumney, N.H.	7	20	21	9.6	21
Pemigewasset:					
Woodstock, N.H.	9	20	21	10.2	20
Plymouth, N.H.	11	20	21	15.6	21
Merrimack:					
Franklin Junction, N.H.	14	21	23	15.3	21
Concord, N. H.	12	22	23	12.3	22
Garvins Falls (Bow), N. H.	5.5	22	22	5.6	22
Connecticut:					
South Newberry, Vt.	22	21	23	24.5	22
White River Junction, Vt.	18	21	22	18.4	22
Montague City, Mass.	28	6	6	28.6	6
Hartford, Conn.	16	6	9	18.9	7
		22	25	17.4	23
Tioughnioga: Whitney Point, N. Y.	12	1	9	14.9	5
Chenango:					
Sherburne, N. Y.	8	4	7	9.6	4
Greene, N. Y.	8	4	7	11.6	5
Binghamton, N. Y.	16	4	7	19.2	5
Chemung: Chemung, N. Y.	12	4	6	14.4	5
Susquehanna:					
Oneonta, N. Y.	12	4	7	16.4	5
Bainbridge, N. Y.	13	4	7	15.5	6
Binghamton, N. Y.	14	5	6	15.0	5
Vestal, N. Y.	14	1	8	21.3	5
Towanda, Pa.	16	5	6	16.7	5
EAST GULF OF MEXICO DRAINAGE					
Tombigbee:					
Lock No. 4, Demopolis, Ala.	39	Mar. 15	2	57.7	Mar. 23
Lock No. 3	33	Mar. 14	5	57.0	Mar. 24,25
Lock No. 2	46	Mar. 17	3	58.1	Mar. 25, 26
Lock No. 1	31	Mar. 17	7	38.7	Mar. 29, 30

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			*Ft.*	
EAST GULF OF MEXICO DRAINAGE (Cont'd.)					
Pearl:					
Jackson, Miss.	18	Mar. 13	3	26.0	Mar. 22
Bogalusa, La.	15	Jan. 7	11	20.4	Jan. 16
				19.6	Feb. 15-16
					Feb. 19-20
				22.0	Mar. 6
Pearl River, La.	12	Jan. 10	10	16.3	Jan. 16
				16.5	Feb. 17
				16.2	Mar. 7
				13.8	5
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Chippewa: Durand, Wis.	11	20	21	11.6	21
Wisconsin: Merrill, Wis.	11	19	19	11.5	19
Rock: Moline, Ill.	10	Mar. 28	7	10.6	Mar. 31
		25	†	11.7	29
Skunk: Augusta, Iowa	15	25	26	17.9	25
Illinois:					
Morris, Ill.	13	4	8	16.0	5
		10	13	17.1	11
		24	30	22.4	26
Peru, Ill.	17	4	20	19.5	6
				21.3	11
		24	†	26.1	26
Peoria, Ill.	18	7	21	20.7	13
		25	†	24.9	29
Havana, Ill.	14	Mar. 30	†	17.4	14-15
				21.0	30
Beardstown, Ill.	14	4	†	18.4	15-16
Bourbeuse: Union, Mo.	15	6	6	15.4	6
Meramec:					
Pacific, Mo.	11	4	7	15.3	5
Valley Park, Mo.	14	4	6	17.7	5
Mississippi:					
Gordons Ferry, Iowa	13	Mar. 31	3	13.6	1
		25	†	14.9	30
Keithsburg, Ill.	12	27	May 1	12.3	30
Keokuk, Iowa	12	3	7	12.6	5
		25	May 1	14.5	25
Gregory Landing Mo.	12	3	7	13.0	6
		25	May 1	14.6	26
Quincy, Ill.	14	4	7	14.9	6
		26	May 1	16.4	27
Hannibal, Mo.	13	Mar. 31	11	15.3	6-7
		25	May 1	16.3	27-28
Louisiana, Mo.	14	5	7	14.7	6
		27	May 1	15.1	27
Grafton, Ill.	18	30	†	—	--
Missouri Basin					
James: Huron, S. Dak.	11	1	10	12.1	7
Lamine: Clifton City, Mo.	15	29	30	19.2	29
Missouri:					
Mobridge, S. Dak.	16	19	20	17.1	19
Pierre, S. Dak.	15	19	22	18.4	21
Chamberlain, S. Dak.	18	21	23	18.8	22
Geddes, S. Dak.	12	17	24	16.8	23
Blair, Nebr.	19	21	28	‡21.8	26
Omaha, Nebr.	19	24	28	21.2	27
Nebraska City, Nebr.	15	5	7	16.1	6
		9	13	15.6	11
		19	†	21.0	28-29
Brownville, Nebr.	15	3	13	16.9	5
		19	†	21.1	28
Rulo, Nebr.	17	21	†	21.6	30
St. Joseph, Mo.	17	25	†	19.0	30-May 1
Atchison, Kans.	20	24	†	23.3	May 1
Waverly, Mo.	18	29	†	18.9	May 1-2
Hermann, Mo.	21	29	30	21.1	29-30
St. Charles, Mo.	25	30	†	--	--

FLOOD STAGE REPORT

(All dates in April unless otherwise specified)

River and station	Flood stage	Above flood stages -dates From-	To-	Crest * Stage	Date
	Ft.			Ft	
MISSISSIPPI SYSTEM--Cont'd					
Ohio Basin					
llegheny:					
Port Allegany, Pa.	9	4	6	10.3	5
Olean, N. Y.	10	4	8	13.8	5
Warren, Pa.	14	5	5	14.1	5
Lock No. 8, Mosgrove, Pa. (Lower gage)	23	5	6	24.9	5
Lock No. 5, Freeport, Pa. (Upper gage)	21	6	6	21.0	6
ocking: Enterprise, Ohio	12	5	5	12.3	5
aint Creek: Bourneville, Ohio	10	4	5	14.8	4
cioto:					
La Rue, Ohio	11	5	5	11.2	5
Circleville, Ohio	14	6	6	15.8	6
Piketon, Ohio	15	4	7	18.7	5
reen: Lock No. 2, Rumsey, Ky.	34	5	11	36.2	8
est Fork:					
Anderson, Ind.	10	5	6	10.4	5
Spencer, Ind.	--	-	-	16.9	6
Elliston, Ind.	18	Mar. 28 5	2 9	23.8 22.8	Mar. 30 7
Newberry, Ind.	--	-	--	17.4	1
Edwardsport, Ind.	12	Mar. 13	15	20.0	1
ast Fork:					
Seymour, Ind.	14	5	7	16.3	5
Bedford, Ind.	-	--	-	24.0	8
Williams, Ind.	10	8	10	12.0	8
hite: Petersburg, Ind.	16	Mar. 28	14	22.6	5
abash:					
Wabash, Ind.	12	4 11 24	6 12 24	18.7 15.1 12.7	5 11 24
La Fayette, Ind.	11	Mar. 28 24	15 28	21.0 16.1	6 25
Covington, Ind.	16	Mar. 28 25	16 29	24.4 19.6	7 27
Montezuma, Ind.	--	--		24.4	8
Terre Haute, Ind.	14	Mar. 28 27	18 †	20.3 15.7	8 29
Hutsonville, Ill.	--	--	-	22.7	10
Riverton, Ind.	-	--	-	20.9	10
Vincennes, Ind.	16	Mar. 29	20	20.7	12
Mount Carmel, Ill.	17	Mar. 29	19	23.2	12
Grayville, Ill.	--	--	-	21.7	13-14
New Harmony, Ind.	15	1	18	18.6	13
hio:					
Tell City, Ind.	38	5	7	39.4	6
Dam No. 47, Newburgh, Ind.	38	4	11	42.0	7
Dam No. 48, near Henderson, Ky.	38	4	11	41.4	7
Mount Vernon, Ind.	35	4	14	39.5	8
Dam No. 49, Uniontown, Ky.	37	5	15	41.9	9
Shawneetown, Ill.	33	1	17	42.2	9
Dam No. 50, Fords Ferry, Ky.	34	1	18	44.8	9
Dam No. 51, Golconda, Ill.	40	7	13	41.6	9, 10
Dam No. 52, Brookport, Ill.	37	5	15	40.8	10
Dam No. 53 near Mound City, Ill.	42	4	17	47.4	10
Cairo, Ill.	40	3	18	46.7	11
White Basin					
Black:					
Poplar Bluff, Mo.	16	4	5	16.9	4
Black Rock, Ark.	14	Mar. 27	20	21.0	10

River and station	Flood stage	Above flood stages -dates From-	To-	Crest * Stage	Date
	Ft			Ft	
MISSISSIPPI SYSTEM--Cont'd					
White Basin--Cont'd					
White:					
Augusta, Ark.	32	10	21	32.1	11
Georgetown, Ark.	21	11	18	21.2	17
Clarendon, Ark.	26	Jan. 5	28	33.6 32.3 27.1	Jan. 22 Feb. 22 21
St. Charles, Ark.	25	Jan. 7	†	33.0 33.2	Jan. 27 Feb. 25
Red Basin					
Ouachita: Monroe, La.	40	--	24	47.3	Mar. 1-2
Black: Jonesville, La.	50	Feb. 4	18	55.9	Mar. 6
Lower Mississippi Basin					
St. Francis:					
Fisk, Mo.	20	4	15	23.5	6-9
St. Francis, Ark.	18	1	21	20.8	10-12
Tallahatchie: Swan Lake, Miss.	26	Jan. 10	13	31.0 30.3 31.3	Jan. 19 Feb. 18 Mar. 17
Yazoo:					
Greenwood, Miss.	35	Mar. 16	2	38.7	Mar. 21
Yazoo City, Miss.	29	Jan. 26	†	36.3	Mar. 14
Mississippi:					
New Madrid, Mo.	34	6	17	36.8	12
Caruthersville, Mo.	32	7	18	34.6	12-13
Atchafalaya Basin					
Atchafalaya:					
Melville, La.	37	Jan. 23	2	44.8	Mar. 5
Atchafalaya, La.	25	Jan. 12	†	30.4	Mar. 5
Morgan City, La.	**6	Jan. 28	9	6.2 7.4 7.6 8.2 8.1 8.0 7.2	Jan. 29 Feb. 12, 13 Feb. 22 Mar. 7-12 Mar. 15 Mar. 27 4
WEST GULF OF MEXICO DRAINAGE					
Sabine: Mineola, Tex.	14	21	26	15.3	25
East Fork: Rockwall, Tex.	10	20	22	10.7	21
Trinity:					
Dallas, Tex.	28	20	21	31.8	20
Trinidad, Tex.	28	22	24	28.8	22
Liberty, Tex.	24	29	†	25.7	May 1

* Provisional.
† Continued at end of month.
‡ Highest stage of record.
** Stages influenced by wind and tide. Flood stage or higher also reached intermittently on Apr. 10-13, 17-19, and 22-30.

RADIOSONDE DATA

Average monthly values

Table 20 — APRIL 19

Standard pressure surfaces (mb.)	ALBANY, N. Y. (1005 MB.)				ALBUQUERQUE, N. MEX. (834 MB.)				ATLANTA, GA. (983 MB.)				BIG SPRING, TEX. (923 MB.)				BISMARCK, N. DAK. (958 MB.)				BOISE, IDAHO (915 MB.)				BROWNSVILLE, TEX. (1013 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	29	86	4.4	73	30	1,620	16.3	23	30	300	14.2	56	30	784	18.3	45	28	505	0.6	80	30	868	10.2	47	30	6	22.9	80
1,000--	29	125			30	43			30	156			30	88			28	153			30	119			30	116	22.1	81
950----	29	544	3.2	61	30	502			30	591	14.5	46	30	536			28	569	- 0.5	76	30	554			30	563	19.4	79
900----	29	978	0.6	62	30	975			30	1,046	11.3	18	30	999	18.3	44	28	1,000	- 1.4	68	30	1,005	11.0	38	30	1,025	17.8	70
850----	29	1,435	- 1.8	61	30	1,461			30	1,520	7.7	52	30	1,487	16.0	40	28	1,453	- 3.4	65	30	1,479	7.8	38	30	1,514	16.3	58
800 -	29	1,915	- 4.0	55	30	1,977	15.0		30	2,017	5.1	47	30	1,999	13.2	37	28	1,931	- 5.1	60	30	1,975	3.7	4	30	2,028	14.5	47
750----	29	2,425	- 6.4	50	30	2,525	10.6	23	30	2,547	2.7	39	30	2,545	10.0	33	28	2,447	- 6.6	56	30	2,501	- 0.4	47	30	2,574	12.0	44
700----	29	2,959	- 8.7	48	30	3,088	6.0	28	30	3,096	- 0.3	39	30	3,108	6.4	30	28	2,973	- 9.1	52	30	3,043	- 4.4	49	30	3,146	8.5	41
650----	29	3,539	-11.7	49	30	3,691	1.1	52	30	3,689	- 3.6	38	29	3,713	1.7	32	28	3,558	-11.9	46	30	3,628	- 8.3	48	30	3,755	4.2	39
600----	29	4,139	-15.0	48	30	4,327	- 1.4	37	30	4,314	- 7.2	37	29	4,350	- 3.5	34	28	4,153	-15.1	46	29	4,241	-12.0	46	30	4,400	- 0.6	39
550----	29	4,797	-18.8	46	29	5,008	- 9.9	40	29	4,991	-11.2	38	28	5,038	- 8.4	32	28	4,816	-19.1	42	29	4,909	-16.1	48	29	5,087	- 5.8	44
500----	29	5,497	-23.1	43	29	5,772	-15.7	40	29	5,714	-15.7		28	5,767	-13.7	29	28	5,508	-23.8	44	29	5,614	-20.1	47	29	5,829	-11.0	40
450----	29	6,266	-28.1	39	29	6,522	-21.3	37	28	6,503	-21.0		28	6,559	-19.6		28	6,278	-29.1	44	29	6,388	-25.2	48	29	6,633	-16.6	37
400----	29	7,096	-34.3		29	7,376	-27.9	35	28	7,358	-27.4		28	7,424	-26.2		28	7,102	-35.1		29	7,230	-31.3	47	29	7,505	-23.0	37
350----	29	8,016	-41.1		29	8,321	-35.2		28	8,305	-34.3		27	8,372	-33.9		28	8,019	-42.0		29	8,160	-38.7		29	8,470	-30.0	
300----	28	9,054	-47.3		29	9,377	-43.4		27	9,363	-42.6		26	9,433	-42.3		27	9,043	-48.9		26	9,217	-45.6		28	9,552	-38.0	
250----	27	10,245	-53.9		29	10,579	-52.4		26	10,570	-51.6		26	10,640	-51.9		27	10,225	-54.1		25	10,411	-53.6		28	10,782	-47.5	
200----	24	11,654	-57.1		24	11,992	-59.8		23	11,970	-59.1		24	12,060	-60.2		25	11,648	-55.1		23	11,826	-57.9		27	12,222	-57.2	
175----	22	12,499	-54.5		20	12,826	-60.0		21	12,811	-59.8		23	12,890	-60.5		25	12,503	-53.6		21	12,670	-58.0		26	13,060	-60.7	
150----	19	13,483	-54.4		18	13,784	-60.1		19	13,771	-59.0		22	13,849	-60.5		19	13,492	-53.2		16	13,624	-54.7		23	14,020	-62.8	
125----	17	14,654	-55.5		14	14,915	-61.4		14	14,901	-61.0		21	14,979	-63.4		19	14,663	-54.0		10	14,790	-55.7		21	15,138	-65.7	
100----	11	16,074	-56.1		12	16,293	-63.9		8	16,276	-62.9		18	16,336	-65.9		13	16,102	-55.1		6	16,197	-57.4		19	16,482	-69.6	
80-----					9	17,650	-65.2						10	17,678	-66.7										11	17,814	-71.6	
60-----					5	19,375	-64.2																					

Standard pressure surfaces (mb.)	BUFFALO, N. Y. (980 MB)				CAMAGUEY, CUBA (1004 MB.)				CARIBOU, MAINE (991 MB.)				CHARLESTON, S. C. (1017 MB.)				CIUDAD VICTORIA, MEX. (974 MB)				COLUMBIA, MO. (987 MB.)				DODGE CITY, KANS. (923 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	221	2.9	71	28	122	20.4	83	30	191	1.0	77	30	18	13.5	74	28	335	26.7	56	30	239	9.1	63	30	792	10.7	47
1,000--	30	135	-		28	156	20.4	81	30	117			30	156	15.5	69	28	99			30	128			30	114		
950----	30	554	2.5	66	28	604	18.4	76	30	533	1.5	64	30	595	14.6	16	28	556	24.9	58	30	556	9.2	53	30	552		
900----	30	987	0.1	67	28	1,061	16.0	71	30	965	- 1.2	65	30	1,046	11.5	47	28	1,025	21.2	62	30	1,001	6.9	53	30	1,003	10.8	45
850----	30	1,443	- 2.6	66	28	1,546	13.3	67	30	1,419	- 3.7	67	30	1,522	8.6	47	28	1,517	17.5	67	30	1,468	4.6	57	30	1,478	9.2	45
800----	30	1,922	- 4.5	61	28	2,054	10.7	63	30	1,895	- 6.2	66	30	2,021	5.5	48	28	2,033	14.1	67	30	1,960	2.3	59	30	1,979	7.4	44
750----	30	2,433	- 6.5	54	28	2,595	8.5	50	30	2,405	- 8.2	63	30	2,552	3.2	40	28	2,582	11.7	57	30	2,486	0.3	55	30	2,512	4.6	40
700----	30	2,966	- 8.4	52	28	3,158	5.6	39	30	2,932	-10.5	54	30	3,102	0.8	37	28	3,150	8.5	53	30	3,030	- 2.2	51	30	3,067	1.3	39
650----	28	3,591	-11.0	50	27	3,770	2.8		30	3,508	-13.4	55	30	3,694	- 2.7	34	25	3,760	4.1	51	30	3,621	- 5.7	50	30	3,664	- 2.9	40
600----	25	4,157	-14.4	49	27	4,406	- 0.1		30	4,105	-16.3	53	30	4,324	- 6.8		23	4,402	- 0.5	52	30	4,239	- 9.6	46	30	4,288	- 6.9	39
550----	23	4,813	-18.3	50	27	5,100	- 4.1		30	4,760	-20.4	46	30	4,998	-10.9		22	5,094	- 5.9	53	30	4,912	-13.9	41	30	4,964	-11.7	8
500----	21	5,529	-22.1	43	26	5,843	- 8.7		30	5,455	-24.4	43	30	5,725	-15.6		22	5,829	-11.0	41	30	5,623	-19.0	39	30	5,684	-17.1	36
450----	21	6,299	-27.5	41	26	6,661	-14.2		30	6,217	-29.3	42	30	6,515	-20.9		19	6,642	-16.1		29	6,401	-24.2		30	6,468	-23.0	35
400----	20	7,181	-33.3		26	7,535	-21.2		30	7,048	-34.7		30	7,371	-27.3	31	19	7,511	-22.6		30	7,248	-30.1	38	30	7,318	-29.4	35
350----	16	8,090	-39.8		25	8,508	-28.1		30	7,968	-40.9		28	8,323	-33.8		18	8,480	-30.0		30	8,185	-37.0		30	8,256	-36.7	
300----	11	9,162	-46.9		25	9,597	-36.0		30	9,004	-46.6		27	9,384	-41.9		16	9,565	-38.6		30	9,234	-44.3		30	9,305	-44.7	
250----	6	10,349	-54.1		25	10,838	-45.6		30	10,202	-50.6		27	10,594	-50.7		13	10,792	-48.1		30	10,434	-52.5		30	10,500	-53.5	
200----					24	12,292	-56.2		27	11,652	-52.1		23	12,033	-58.9		12	12,227	-58.7		29	11,863	-58.1		30	11,908	-59.9	
175----					24	13,130	-61.4		26	12,516	-50.4		21	12,869	-60.5		12	13,057	-62.6		29	12,703	-58.1		25	12,752	-58.5	
150----					24	14,073	-66.6		23	13,514	-49.6		19	13,831	-59.5		9	14,011	-66.0		26	13,691	-56.8		23	13,720	-58.7	
125----					22	15,167	-70.3		19	14,696	-50.2		14	14,981	-61.3		7	15,107	-69.2		23	14,856	-58.0		20	14,866	-59.6	
100----					21	16,474	-75.1		12	16,146	-51.0		8	16,372	-64.0						22	16,254	-59.9		14	16,235	-60.7	
80-----					19	17,762	-75.5		9	17,590	-51.5		6	17,740	-64.4						15	17,663	-60.5		7	17,602	-61.8	
60-----					12	19,453	-67.5		6	19,440	-51.2										8	19,477	-58.5					

Standard pressure surfaces (mb.)	EL PASO, TEX. (878 MB.)				ELY, NEV. (807 MB.)				GLASGOW, MONT. (940 MB.)				GRAND JUNCTION, COLO. (849 MB.)				GREAT FALLS, MONT. (886 MB.)				GREENSBORO, N. C. (986 MB.)				HATTERAS, N. C. (1018 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	20	1,195	21.2	19	29	1,908	7.9	39	30	648	3.5	66	30	1,474	12.4	34	30	1,128	4.8	59	28	273	11.1	59	30	3	13.5	7
1,000--	30	53			30	91			26	141			30	70			30	124			28	150			30	149	13.8	6
950----	30	515			30	536			26	564			30	521			30	555			28	583	12.8	43	30	585	11.9	5
900----	30	988			30	996			30	1,001	1.8	61	30	981			30	1,001			28	1,034	9.6	46	30	1,031	9.2	5
850----	30	1,478	20.4	16	30	1,471			30	1,460	- 0.5	59	30	1,461			30	1,463	3.5	52	28	1,505	6.2	52	30	1,503	6.4	5
800----	30	1,996	16.1	19	30	1,979	9.6	34	30	1,942	- 3.0	55	30	1,970	11.3	29	30	1,952	0.1	53	28	1,999	2.8	54	30	1,998	3.6	5
750----	30	2,546	11.7	22	30	2,515	5.7	35	30	2,456	- 5.9	54	30	2,507	6.8	33	30	2,470	- 3.8	6	28	2,525	0.1	49	30	2,524	0.9	4
700----	30	3,111	7.1	24	30	3,070	0.9	39	30	2,988	- 8.6	47	30	3,066	1.9	39	30	3,006	- 8.0	58	28	3,069	- 2.6	45	30	3,071	- 2.0	4
650----	30	3,716	1.8	29	30	3,662	- 3.8	42	30	3,567	-12.1	44	30	3,660	- 3.1	44	30	3,584	-11.9	56	28	3,659	- 5.8	43	29	3,659	- 5.4	4
600----	29	4,356	- 3.5	33	30	4,287	- 8.3	45	30	4,167	-16.1	44	30	4,285	- 8.3	48	30	4,185	-15.9	52	27	4,272	- 9.3	43	29	4,279	- 8.8	4
550----	29	5,036	- 8.6	31	30	4,962	-12.9	40	29	4,821	-20.5	45	30	4,961	-13.3	53	30	4,838	-20.0	49	27	4,942	-13.6	42	29	4,953	-12.7	4
500----	29	5,766	-14.1		30	5,676	-17.9	38	29	5,515	-25.0	46	30	5,673	-18.5	52	30	5,536	-24.8	50	26	5,656	-18.3	39	29	5,669	-17.4	3
450----	29	6,560	-20.0		30	6,457	-23.8	37	29	6,273	-30.4	45	30	6,457	-24.1	46	30	6,296	-30.0	52	25	6,432	-24.0	36	27	6,460	-22.9	
400----	28	7,420	-26.4		30	7,303	-30.0	35	29	7,100	-36.3	44	29	7,297	-30.2	42	30	7,122	-36.3	55	24	7,277	-30.3		27	7,311	-29.3	3
350----	28	8,371	-33.7		30	8,241	-36.5		29	8,013	-42.6		29	8,233	-37.1	38	30	8,034	-43.0		23	8,212	-36.8		27	8,250	-36.3	
300----	28	9,431	-41.7		30	9,290	-44.8		29	9,038	-49.4		28	9,281	-45.0		30	9,057	-50.0		23	9,260	-44.6		27	9,301	-44.1	
250----	25	10,651	-51.4		30	10,484	-53.7		28	10,222	-54.7		24	10,472	-52.9		28	10,242	-55.2		23	10,458	-52.6		27	10,500	-52.3	
200----	20	12,066	-59.9		28	11,893	-60.3		27	11,650	-56.0		22	11,886	-58.9		27	11,655	-56.5		21	11,887	-58.7		27	11,923	-57.4	
175----	14	12,888	-59.4		25	12,726	-59.6		23	12,490	-55.1		19	12,724	-58.0		21	12,498	-55.4		20	12,726	-58.0		27	12,765	-57.6	
150----	14	13,851	-59.9		24	13,700	-59.8		18	13,478	-53.7		13	13,687	-56.9		20	13,485	-54.2		15	13,704	-56.9		24	13,724	-57.0	
125----	9	14,977	-63.9		17	14,849	-60.2		15	14,650	-54.1		10	14,845	-57.2		13	14,659	-55.5		10	14,871	-58.5		16	14,886	-58.6	
100----	5	16,335	-67.3		11	16,236	-60.2		11	16,083	-55.6		6	16,262	-59.6		7	16,103	-56.1						10	16,297	-60.5	

These average values for standard pressure surfaces were obtained by radiosondes: dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

APRIL 1950

Standard pressure surface (mb)	HAVANA, CUBA. (1012 MB.)				HONOLULU, T. H. (1015 MB.)				INTERNAT. FALLS, MINN. (973 MB.)				JOLIET, ILL. (994 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	49	21.6	78	30	3	24.1	68	30	361	- 1.5	68	30	179	4.9	80
1,000--	30	153	21.3	77	30	131	22.5	69	30	140			30	125		
950----	30	601	18.6	76	30	581	19.0	74	30	551	- 1.1	61	30	548	4.5	68
900----	30	1,059	15.9	72	30	1,039	15.0	78	30	979	- 4.6	63	30	984	2.7	67
850----	30	1,543	13.2	67	30	1,523	12.7	77	30	1,428	- 6.2	66	30	1,445	0.8	67
800----	30	2,051	10.9	56	30	2,031	10.6	68	30	1,901	- 7.9	66	30	1,930	- 1.2	67
750----	30	2,595	9.2	37	30	2,574	8.7	55	30	2,410	- 9.2	60	30	2,449	- 3.6	62
700----	30	3,157	6.5	29	30	3,136	5.9	48	30	2,933	-11.3	57	30	2,986	- 6.1	60
650----	30	3,767	3.2		30	3,742	2.5	46	30	3,508	-14.0	60	30	3,571	- 8.8	55
600----	30	4,407	0.0		30	4,382	- 1.3	50	30	4,103	-16.5	60	30	4,180	-12.0	49
550----	30	5,100	- 3.8		30	5,072	- 5.5	47	30	4,758	-20.3	62	30	4,845	-16.4	48
500----	30	5,845	- 8.3		30	5,813	-10.2	48	30	5,451	-24.6	61	30	5,551	-21.0	44
450----	30	6,658	-14.3	26	30	6,625	-15.7	43	30	6,214	-29.8	57	30	6,328	-26.4	42
400----	30	7,536	-21.0	28	30	7,496	-21.9	44	29	7,029	-36.3	54	30	7,163	-32.8	42
350----	28	8,509	-28.0		30	8,465	-29.4	44	29	7,942	-42.5		30	8,089	-39.8	
300----	27	9,599	-36.3		30	9,546	-38.1		28	8,974	-48.8		29	9,121	-46.5	
250----	27	10,840	-45.3		30	10,776	-47.8		25	10,163	-53.3		29	10,313	-52.7	
200----	25	12,293	-55.3		29	12,214	-58.2		23	11,584	-52.8		27	11,754	-56.3	
175----	24	13,131	-60.6		29	13,045	-62.6		21	12,457	-51.4		26	12,604	-56.3	
150----	23	14,082	-65.0		28	13,990	-65.2		17	13,454	-51.1		24	13,593	-54.5	
125----	22	15,189	-68.4		27	15,094	-67.6		12	14,628	-50.5		20	14,769	-56.7	
100----	19	16,511	-73.0		21	16,432	-70.0		11	16,082	-51.5		15	16,188	-58.1	
80-----	17	17,815	-73.3		13	17,763	-68.7			17, 42	- 2.9		7	17,589	-58.7	
60-----	6	19,547	-65.6		5	19,497	-65.4									

Standard pressure surface (mb)	LAKE CHARLES, LA. (1016 MB.)				LANDER, WYO. (826 MB.)				LAS VEGAS, NEV. (933 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	5	17.3	81	30	1,696	6.0	49	30	660	21.4	14
1,000--	30	144	17.8	74	30	92			30	55		
950----	30	586	15.5	71	30	533			30	510		
900----	30	1,038	12.7	70	30	986			30	977	22.2	
850----	30	1,517	11.0	66	30	1,457			30	1,468	17.8	
800----	30	2,022	9.6	54	30	1,955	5.8	43	30	1,982	13.4	19
750----	30	2,565	7.2	49	30	2,485	1.8	47	30	2,524	8.7	24
700----	30	3,120	4.0	48	30	3,032	- 2.6	51	30	3,085	3.9	27
650----	30	3,723	0.2	44	30	3,621	- 6.9	52	30	3,686	- 0.8	26
600----	30	4,355	- 4.2	44	30	4,235	-11.0	49	30	4,316	- 5.6	26
550----	30	5,037	- 8.8	41	30	4,903	-15.5	47	30	4,993	-10.3	
500----	30	5,765	-13.9	38	30	5,610	-20.7	44	30	5,719	-15.6	
450----	30	6,560	-19.6		30	6,385	-26.0	40	30	6,504	-21.4	
400----	30	7,421	-25.9		30	7,223	-32.4	38	29	7,370	-27.8	
350----	30	8,373	-33.0		30	8,150	-39 7		28	8,312	-35.4	
300----	29	9,436	-41.0		30	9,186	-47.5		28	9,367	-43.9	
250----	29	10,651	-50.4		30	10,370	-54.7		27	10,571	-53.1	
200----	29	12,075	-58.9		29	11,787	-58.2		26	11,978	-61.2	
175----	28	12,905	-60.5		29	12,629	-57.3		25	12,810	-61.7	
150----	27	13,860	-62.1		29	13,595	-55.8		23	13,772	-60.5	
125----	27	14,981	-64.4		26	14,752	-56.5		20	14,913	-61.9	
100----	24	16,338	-66.3		22	16,165	-58.4		17	16,288	-64.0	
80-----	17	17,685	-67.5		18	17,559	-59 2		9	17,657	-64.9	
60-----	11	19,424	-64.0						5	19,398	-61.5	

Standard pressure surface (mb)	LITTLE ROCK, ARK. (1007 MB.)				MAZATLAN, MEXICO (1009 MB.)				MEDFORD, ORE. (970 MB.)				MERIDA, MEXICO (1011 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	79	15.2	59	30	14	23.0	79	30	401	11.9	63	30	27	26.1	61
1,000--	30	137			30	93	22.4	73	30	143			30	124	25.0	63
950----	30	572	14.5	51	30	551	23.8	34	30	582	12.4	51	30	573	22.2	59
900----	30	1,027	11.5	54	30	1,012	23.0	22	30	1,027	9.3	52	30	1,041	19.5	62
850----	30	1,503	8.5	54	30	1,507	20.4	21	30	1,497	5.6	55	30	1,531	16.6	62
800----	30	2,002	6.6	51	30	2,027	17.0		30	1,990	2.1	55	30	2,045	13.1	62
750----	30	2,537	3.9	51	30	2,578	13.5		30	2,510	- 1.1	53	30	2,592	10.0	50
700----	30	3,088	1.3	45	30	3,149	9.4		30	3,056	- 4.0	48	30	3,156	8.0	29
650----	30	3,685	- 2.4	39	30	3,762	5.0		30	3,642	- 6.8	44	29	3,770	4.9	27
600----	29	4,311	- 6.5	36	29	4,406	0.2		30	4,259	-10.1	43	29	4,412	0.9	28
550----	29	4,989	-10.6	34	24	5,096	- 4.6		30	4,927	-13.8	42	27	5,106	- 3.5	27
500----	29	5,712	-15.3	33	21	5,839	- 9.5		30	5,643	-18.5	38	26	5,852	- 8.4	
450----	29	6,502	-20.7		20	6,652	-15.1		30	6,420	-24.2	35	25	6,669	-14.2	
400----	29	7,360	-27.1		20	7,524	-21.5		30	7,268	-30.4	35	24	7,542	-21.2	
350----	28	8,308	-34.7		19	8,493	-29.0		29	8,216	-37.4	38	24	8,512	-28.5	
300----	28	9,365	-43.3		16	9,582	-37.2		28	9,257	-45.4		22	9,597	-36.9	
250----	27	10,566	-52.5		15	10,814	-47.1		27	10,445	-53.7		21	10,835	-45.9	
200----	25	11,977	-60.2		12	12,253	-59.0		24	11,866	-60.3		21	12,284	-56.8	
175----	23	12,817	-59.8		10	13,075	-63.4		24	12,695	-60.9		20	13,120	-62.6	
150----	19	13,790	-59.8		7	14,010	-64.9		20	13,632	-57.6		19	14,058	-66.4	
125----	12	14,934	-60.8		7	15,110	-69.2		15	14,788	-58.0		17	15,153	-71.4	
100----	10	16,327	-63.3		5	16,434	-72.4		12	16,173	-58.5		15	16,460	-76.1	
80-----													10	17,746	-76.1	

Standard pressure surface (mb)	MIAMI, FLA. (1019 MB.)				NANTUCKET, MASS. (1013 MB.)				NASHVILLE, TENN. (997 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	4	20.3	70	30	14	5.0	88	30	177	12.3	61
1,000--	30	165	20.0	67	30	122	6.1	80	30	146		
950----	30	607	17.0	67	30	542	6.3	67	30	578	11.3	50
900----	30	1,064	13.9	65	30	985	4.1	62	30	1,027	8.5	54
850----	30	1,544	11.1	56	30	1,444	1.7	62	30	1,497	5.3	55
800----	30	2,048	9.1	43	30	1,934	- 0.8	60	30	1,990	3.2	51
750----	30	2,592	7.0	36	30	2,450	- 3.0	49	30	2,520	1.2	45
700----	30	3,145	4.4	33	30	2,991	- 5.7	49	30	3,063	- 1.6	46
650----	30	3,755	1.3	33	29	3,571	- 9.0	51	30	3,656	- 4.8	45
600----	29	4,386	- 2.1		29	4,182	-12.2	46	30	4,275	- 8.6	47
550----	29	5,078	- 6.2		29	4,843	-15.8	41	30	4,949	-13.0	43
500----	29	5,811	-11.0		29	5,555	-20.4	37	30	5,664	-17.6	37
450----	28	6,618	-16.6	29	29	6,324	-25.8		30	6,448	-23.0	
400----	28	7,487	-22.6		29	7,169	-31.8		30	7,298	-29.3	
350----	28	8,452	-29.9		29	8,099	-38.6		30	8,238	-36.0	
300----	28	9,531	-38.1		28	9,135	-46.0		29	9,286	-43.6	
250----	25	10,763	-47.6		27	10,323	-51.8		29	10,488	-52.3	
200----	25	12,204	-56.6		27	11,754	-55.5		28	11,906	-58.9	
175----	24	13,043	-60.3		26	12,602	-54.8		19	12,742	-58.4	
150----	24	13,997	-62.8		24	13,592	-53.9		14	13,724	-58.1	
125----	20	15,106	-66.4		18	14,766	-54.4		12	14,863	-59.3	
100----	16	16,437	-70.1		12	16,204	-56.2					
80-----	8	17,752	-71.3									

Standard pressure surface (mb)	NEW ORLEANS, LA. (1018 MB.)				NORTH PLATTE, NEBR. (917 MB.)				OAKLAND, CALIF. (1015 MB.)				OKLAHOMA CITY, OKLA. (969 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	29	2	16.7	79	30	849	6.0	67	30	6	13.7	69	30	391	14.0	55
1,000--	29	157	17.5	68	30	125			30	134	13.5	65	30	119		
950----	29	597	15.3	62	30	556			30	572	13.8	50	30	556	14.1	53
900----	29	1,051	12.8	59	30	999	6.4	60	30	1,022	12.6	42	30	1,011	11.9	55
850----	29	1,530	11.5	46	30	1,467	4.7	57	30	1,499	10.2	37	30	1,488	10.4	51
800----	29	2,035	9.3	46	30	1,959	2.6	53	30	2,001	7.6	33	30	1,991	8.7	50
750----	29	2,573	6.7	47	30	2,486	0.3	52	30	2,535	4.7	32	30	2,528	5.9	47
700----	29	3,132	3.8	45	30	3,029	- 2.8	48	30	3,088	1.5	30	30	3,085	3.0	40
650----	29	3,733	0.2	44	30	3,617	- 6.4	48	30	3,684	- 2.4	28	30	3,685	- 1.1	36
600----	29	4,367	- 3.9	44	29	4,231	-10.7	48	30	4,310	- 6.4	27	30	4,314	- 5.5	34
550----	29	5,048	- 8.3	40	28	4,901	-14.8	47	30	4,986	-11.0		30	4,995	-10.1	33
500----	29	5,782	-13.2	38	28	5,611	-19.8	45	30	5,711	-16.2		30	5,719	-15.1	30
450----	29	6,576	-18.7	33	27	6,390	-25.6	42	30	6,496	-22.2		30	6,510	-20.6	
400----	29	7,444	-25.2	35	27	7,227	-32.1	41	30	7,350	-29.0		29	7,369	-27.3	
350----	28	8,402	-31.8		27	8,156	-38.6		30	8,291	-36.4		28	8,317	-34.7	
300----	28	9,474	-39.6		26	9,201	-45.6		29	9,345	-44.3		28	9,374	-43.0	
250----	28	10,696	-49.0		24	10,390	-53.4		29	10,544	-52.9		28	10,578	-52.4	
200----	26	12,129	-57.6		23	11,802	-57.5		26	11,951	-60.9		24	11,998	-60.6	
175----	23	12,959	-59.0		23	12,647	-56.2		25	12,778	-62.2		20	12,828	-60.0	
150----	20	13,931	-60.2		20	13,623	-55.5		18	13,758	-60.6		17	13,789	-58.6	
125----	16	15,079	-62.7		19	14,778	-55.8		16	14,891	-60.5		7	14,948	-60.4	
100----	12	16,458	-66.0		17	16,194	-57.8		12	16,283	-61.7					
80-----	6	17,834	-65.5		12	17,584	-58.0		8	17,686	-62.7					
60-----																
50-----																

Standard pressure surface (mb)	OMAHA, NEBR. (979 MB.)				PHOENIX, ARIZ. (970 MB.)				PITTSBURGH, PA. (971 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	29	308	8.8	55	30	338	23.6	22	30	382	6.0	63
1,000--	29	133			30	67			30	140		
950----	29	559	7.1	53	30	521	26.6	17	30	565	5.5	59
900----	29	1,000	4.7	56	30	993	22.8	18	30	1,003	3.5	57
850----	29	1,464	2.6	58	30	1,486	18.6	20	30	1,465	1.1	58
800----	29	1,953	1.3	50	30	2,001	14.1	23	30	1,951	- 1.2	56
750----	29	2,477	- 0.9	49	30	2,546	9.5	27	30	2,474	- 3.7	57
700----	29	3,019	- 3.9	50	30	3,108	4.8	28	30	3,005	- 6.6	58
650----	29	3,607	- 7.1	46	30	3,711	0.4	29	30	3,590	- 9.3	59
600----	29	4,221	-10.8	43	30	4,343	- 3.7	28	29	4,200	-12.6	62
550----	29	4,888	-15.3	39	30	5,026	- 8.4		29	4,867	-16.4	58
500----	29	5,598	-19.9	35	30	5,756	-13.7		29	5,571	-21.0	52
450----	29	6,376	-25.6		30	6,550	-19.8		29	6,345	-26.0	45
400----	29	7,215	-32.0		30	7,409	-26.5		28	7,189	-31.8	40
350----	28	8,144	-38.8		30	8,358	-33.8		27	8,117	-38.7	
300----	28	9,185	-46.3		30	9,420	-41.9		27	9,158	-46.1	
250----	28	10,376	-53.2		30	10,627	-51.6		27	10,350	-53.3	
200----	27	11,795	-58.2		30	12,045	-59.2		25	11,773	-57.6	
175----	21	12,630	-56.6		29	12,881	-60.0		23	12,634	-56.8	
150----	17	13,608	-55.4		28	13,845	-59.2		22	13,608	-57.2	
125----	15	14,763	-56.4		24	14,977	-61.5		18	14,774	-57.5	
100----	13	16,163	-56.7		24	16,350	-64.0		15	16,196	-57.3	
80-----	9	17,577	-57.4		22	17,717	-64.6		13	17,595	-57.7	
60-----					15	19,483	-61.5					
50-----					7	20,608	-59.5					

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

APRIL 1950

Standard pressure surface (mb)	PORTLAND, MAINE. (1013 MB.)				RAPID CITY, S. DAK. (902 MB.)				ST. CLOUD, MINN. (978 MB.)				SAN ANTONIO, TEX. (987 MB.)				SAN JUAN, P. R. (1015 MB.)				SANTA MARIA, CALIF. (1007 MB.)				S.STE. MARIE, MICH. (988 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	20	3 4	78	29	980	2.5	72	30	317	0 7	73	30	240	18.6	77	30	19	23.6	80	30	71	11.7	83	30	221	- 2.2	82
1,000--	30	121	4 8	68	29	133			30	133			30	122			30	146	22.7	80	30	131	11.6	81	30	126		
950----	30	543	3 6	57	29	558			30	554	0.6	64	30	566	17.8	72	30	595	19.7	82	30	566	13.4	62	30	535	- 2.6	70
900----	30	976	1.3	57	29	999			30	980	- 2.0	63	30	1,025	15.9	71	30	1,057	16.6	82	30	1,018	14.4	42	30	961	- 4.5	67
850----	30	1,434	- 1 6	59	29	1,460	2.8	58	30	1,433	- 3.6	62	30	1,510	14.2	68	29	1,542	13.5	80	30	1,499	12.0	40	30	1,410	- 6.0	68
800----	30	1,914	- 4 2	57	29	1,948	0.2	58	30	1,911	- 4 7	60	30	2,021	12.5	56	29	2,051	11.1	74	30	2,004	8.7	37	30	1,883	- 7.7	65
750----	30	2,428	6.3	53	29	2,468	- 2.3	57	30	2,424	- 6 3	59	30	2,568	10.3	45	29	2,598	9.5	52	30	2,540	6.2	29	30	2,388	- 9.4	58
700----	30	2,958	- 8.4	49	29	3,009	- 5.3	56	30	2,955	- 8.2	58	30	3,133	7.0	36	29	3,158	6.7	45	30	3,097	3.2	29	30	2,914	-11.6	54
650----	30	3,539	-11 4	51	29	3,593	- 8.5	52	30	3,537	-10.9	56	30	3,738	2.5	35	29	3,775	4.5	31	30	3,697	- 0.4	26	30	3,486	-14.0	53
600----	30	4,139	-14 9	50	29	4,204	-12.3	50	30	4,140	-14.0	51	30	4,378	- 2 5	36	28	4,412	1.9		30	4,329	- 4.5		30	4,084	-17.0	49
550----	29	4,793	-18 6	43	29	4,868	-16.5	49	30	4,801	-17.8	46	30	5,065	- 7.3	35	28	5,110	- 2.1		30	5,012	- 8.9		30	4,735	-20.5	48
500----	29	5,494	-22 9	41	29	5,573	-21.4	46	30	5,503	-22.3	44	30	5,798	-12.6	34	28	5,859	- 6.8		30	5,740	-14.4		30	5,432	-25.1	48
450----	29	6,259	-28 1	39	29	6,346	-26 9	45	30	6,274	-27.7	42	30	6,598	-18.1		28	6,678	-12.4		30	6,534	-20.5		29	6,202	-30.0	48
400----	27	7,096	-34.2		29	7,182	-32.9	43	29	7,101	-34.2	38	30	7,464	-24.6		28	7,563	-18.5		30	7,391	-27.3		29	7,026	-35.7	45
350----	26	8,02	-41.4		28	8,117	-39.3		29	8,023	-40.5		30	8,422	-31.9		28	8,545	-25 7		30	8,338	-34.6		29	7,942	-42.0	
300----	22	9,052	-48.5		27	9,155	-46.3		29	9,058	-47.2		30	9,492	-40.2		28	9,643	-34.2		29	9,400	-42.4		29	8,971	-48.0	
250----	20	10,236	-54.0		25	10,351	-53.6		28	10,258	-52.2		29	10,709	-49.6		27	10,892	-44.1		29	10,607	-51.6		28	10,159	-52.8	
200----	15	11,623	-53.1		22	11,776	-56.6		26	11,702	-54.8		29	12,136	-58.7		25	12,353	-55.9		29	12,026	-60.3		28	11,593	-54.3	
175----	14	12,475	-51.9		19	12,635	-55.4		24	12,559	-53 0		28	12,970	-60.5		25	13,190	-62.5		29	12,854	-61.1		27	12,451	-52.3	
150----	12	13,459	-51.7		17	13,618	-54.0		22	13,553	-52 5		23	13,925	-61.6		24	14,125	-67.9		28	13,816	-59 8		23	13,437	-51.6	
125----	9	14,634	-52.7		16	14,787	-54.5		17	14,728	-52.6		21	15,051	-63 9		23	15,211	-71.6		25	14,952	-61 1		18	14,627	-52.4	
100----	6	16,078	-54.8		11	16,192	-56.0		8	16,181	-54.5		11	16,417	-67.2		17	16,521	-75.9		22	16,333	-62.6		15	16,070	-53.9	
80-----	5	17,496	-56.5		5	17,612	-55.7		7	17,602	-54.9		5	17,773	-68.0		10	17,817	-76.4		16	17,715	-62.9		11	17,507	-54.8	

Standard pressure surface (mb)	SPOKANE, WASH. (932 MB.)				SWAN ISLAND, W. I. (1014 MB.)				TACUBAYA, MEXICO (773 MB.)				TAMPA, FLA. (1019 MB.)				TATOOSH ISLAND, WASH. (1014 MB.)				TOLEDO, OHIO (993 MB.)				WASHINGTON, D. C. (1014 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	722	7 8	59	30	10	24.8	76	27	2,306	18.1	43	30	9	17.5	71	30	31	7 3	80	30	191	5.1	73	30	25	10.9	58
1,000--	30	132			30	132	23.8	78	27	36			30	169	18.1	63	30	145	6 6	79	30	134			30	140	10.7	55
950----	30	563			30	583	20.5	80	27	501			30	608	16.1	57	30	569	4.4	73	30	558	4.4	62	30	569	8.2	53
900----	30	1,007	6.8	49	30	1,045	17.7	74	27	981			30	1,065	13.5	55	30	1,003	1.7	72	30	992	1.2	64	30	1,011	5.9	57
850----	30	1,473	3.1	52	30	1,532	15.0	66	27	1,480			30	1,545	11.0	50	30	1,461	- 1.2	68	30	1,451	0.1	66	30	1,477	3.1	58
800----	30	1,961	- 0.7	56	30	2,043	12.0	58	27	2,016			30	2,048	8.7	41	30	1,942	- 3.9	59	30	1,935	- 2.4	68	30	1,966	0.2	59
750----	30	2,477	- 4.5	56	30	2,593	9.7	49	27	2,571	16.7	40	30	2,588	6.1	36	30	2,456	- 6.7	54	30	2,452	- 4.6	64	30	2,486	- 2.8	56
700----	30	3,013	- 7.9	57	30	3,154	7.6	30	27	3,148	12.3	44	30	3,141	3 4	35	30	2,984	- 9.7	51	29	2,985	- 7.2	59	30	3,024	- 5.7	52
650----	30	3,591	-11.6	54	30	3,771	5.1		26	3,770	7.0	54	30	3,744	0.1	36	30	3,559	-12.9	48	28	3,566	-10.2	58	30	3,609	- 8.6	48
600----	30	4,194	-15.1	49	30	4,410	1.7		26	4,418	1.6	63	30	4,375	- 3.5	34	30	4,159	-15.6	53	27	4,177	-13.0	54	30	4,219	-12.1	46
550----	30	4,851	-19.1	51	30	5,109	- 2 2		25	5,116	- 4.0	68	30	5,063	- 7.7	35	30	4,813	-20.0	55	26	4,845	-16.6	46	29	4,884	-16.2	46
500----	30	5,550	-23.9	51	30	5,857	- 7.0		25	5,858	- 9.4	63	30	5,792	-12.5	32	30	5,511	-24.2	50	26	5,548	-20.7	44	29	5,589	-20.6	43
450----	29	6,317	-29 2	49	30	6,677	-12.5		24	6,676	-14.4	44	30	6,596	-18.0	33	30	6,274	-29.3	48	27	6,329	-26.1	44	29	6,365	-25.9	40
400----	29	7,146	-35 3	47	29	7,559	-19.1		24	7,549	-20.4		30	7,459	-24.1	29	30	7,104	-34.4	45	27	7,167	-32.3	41	29	7,203	-32.0	38
350----	27	8,057	-41.7		29	8,538	-26.1		22	8,523	-27.8		30	8,419	-31.2		30	8,025	-40.4		25	8,107	-39.1		29	8,132	-38.7	
300----	27	9,087	-48.3		28	9,633	-34.5		22	9,613	-36.1		30	9,493	-39.3		28	9,059	-46.6		25	9,146	-46.8		29	9,174	-46.0	
250----	26	10,273	-53.8		28	10,883	-44.2		20	10,853	-46.2		30	10,717	-48.6		28	10,251	-52.9		24	10,339	-53.1		28	10,363	-53.3	
200----	26	11,697	-55 5		27	12,339	-55.6		19	12,299	-57.3		29	12,155	-56.7		23	11,690	-55.0		20	11,748	-57.4		28	11,782	-57.5	
175----	26	12,552	-53 2		27	13,178	-61.5		18	13,130	-63 0		29	12,995	-59.3		20	12,544	-54.7		17	12,564	-55.4		27	12,621	-57.2	
150----	24	13,546	-53 5		26	14,120	-67.1		18	14,067	-68.1		28	13,957	-61.1		18	13,537	-53.8		12	13,548	-53.7		26	13,598	-56.2	
125----	21	14,712	-53.6		25	15,208	-71.8		15	15,149	-72.3		26	15,086	-64.9		14	14,705	-54.1		12	14,716	-55.0		22	14,733	-56.5	
100----	15	16,162	-54.7		25	16,506	-76.6		12	16,457	-75.9		25	16,435	-68.5		7	16,174	-56.5		11	16,144	-56.3		18	16,149	-58.6	
80-----	8	17,593	-53.6		24	17,786	-76.6						19	17,770	-68.5										11	17,539	-58.7	
60-----					15	19,480	-67.1																					
50-----					12	20,582	-63.8																					

Note: All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes: dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

Altitude (meters) m s l	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface	30	177	2.7	29	263	2.8	30	257	3.2	26	340	1.1	27	331	2.8	29	350	2.0	29	133	4.6	[illegible]	217	1.0	27	311	1.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.5	[illegible]	[illegible]	4.1
0	--	---	---	-	---	-	30	299	4.1	--	---	-	-	-	-	-	-	-	29	140	8.0	26	35	5.7	27	27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.5	[illegible]	[illegible]	4.7
000	30	179	3.7	-	-	-	30	265	5.0	--	---	-	27	341	3.1	29	325	2.4	22	161	[illegible]	21	268	6.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.4	[illegible]	[illegible]	6.5
500	26	203	3.8	--	-	-	28	268	5.0	26	324	2.5	27	317	3.1	29	344	2.7	16	120	[illegible]	19	261	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.9	[illegible]	[illegible]	8.7
000	24	237	5.1	29	257	3.0	28	278	[illegible]	24	287	3.3	17	298	4.6	28	278	4.1				16	268	8.0	19	260	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.8	[illegible]	[illegible]	10.2
500	24	253	7.0	29	262	3.4	26	278	[illegible]	23	280	5.6	11	284	[illegible]	27	288	6.3				14	283	8.1	15	[illegible]	5.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1	[illegible]	[illegible]	10.6
000	24	263	8.5	29	260	5.1	26	285	8.2	19	268	7.5	15	292	[illegible]	26	287	7.5				10	308	[illegible]	11	[illegible]	9.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8.1	[illegible]	[illegible]	12.2
000	21	269	12.3	25	272	10.3	23	277	9.6	15	283	11.2	11	295	9.4	20	283	9.0							11	[illegible]	14.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.0	[illegible]	[illegible]	14.4
000	19	276	14.2	23	277	12.0	17	287	14.8	10	287	13.0	12	294	11.2	17	276	12.5										[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12.0			
000	18	283	14.2	23	277	13.8	16	288	17.6							11	278	15.3										41	278	13.0						
000	11	276	19.1	20	271	16.1	12	279	21.0																			10	293	17.6						
000				15	280	18.9																														

Altitude (meters) m s l	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro N. C. (271 m.)			Havre Mont. (767 m.)			Jackson-ville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface	30	268	2.7	30	264	3.5	29	348	4.5	28	[illegible]	1.2	29	111	1.4	26	278	3.0	20	241	[illegible]	30	250	1.2	30	317	1.5	[illegible]	[illegible]	[illegible]	27	295	2.0	29	266	1.9
0	--	---	---	-	--	---	29	235	5.0	--	---	---	29	327	1.9	26	275	1.1	---	---	---	30	310	[illegible]	30	321	1.3	19	80	2.9	27	305	3.1	29	61	2.4
000	--	---	---	-	-	-	29	342	4	28	305	1.4	29	47	4.0	25	266	3.1	30	342	1.4	29	310	4.2	36	261	1.0	29	58	[illegible]	25	239	2.6	28	239	[illegible]
500	--	---	---	30	262	3.4	29	253	5.9	27	298	2.9	28	264	4.5	17	277	8.4	30	239	1.8	21	255	4.8	30	242	2.3	9	11	[illegible]	22	279	2.9	27	246	6.2
000	30	263	2.8	30	270	4.1	27	273	7.1	27	286	3.5	7	274	5.5	11	280	11.4	6	240	7.5	20	275	7.4	28	243	2.9	4	251	[illegible]	17	317	6.0	23	248	8.0
500	30	256	3.8	30	264	4.5	23	282	11.0	20	276	4.2	26	281	6.4				6	248	4.0	10	291	10.1	23	260	3.1	29	317	4.1	16	307	9.4	21	265	8.8
000	29	258	4.5	29	251	5.5	21	280	12.8	13	271	6.6	25	288	7.2				18	250	5.5	13	296	12.9	21	284	5.8	29	282	4.7	14	304	10.7	19	273	10.5
500	28	277	6.7	23	276	7.9	20	278	13.1				21	296	9.8				29	278	6.7	13	284	15.9	18	286	10.0	18	297	7.6				15	290	13.3
000	26	288	10.9	13	281	10.8	16	281	17.3				20	292	11.8				28	275	9.6	12	288	20.9	16	296	13.5	11	295	11.6				13	292	14.5
500	21	284	12.6				15	279	18.4				19	287	15.2				24	270	10.8				13	288	16.4							11	294	17.3
000	13	303	13.4				11	284	20.1				13	297	18.7				23	286	13.9				11	300	21.1									
500	10	307	18.4										12	293	22.2				17	292	16.0															

Altitude (meters) m s l	New York, N. Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (138 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (191 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface	30	298	2.3	29	262	5.0	30	301	1.7	27	297	3.3	30	252	1.5	27	354	[illegible]	26	309	2.6	28	[illegible]	[illegible]	27	109	[illegible]	28	270	4.0	[illegible]	[illegible]	[illegible]	29	252	4.0
0	30	288	3.7	29	293	3.3	30	321	1.7	27	307	3.1	30	235	2.0				26	316	3.7	28	[illegible]	3.4	27	114	[illegible]	[illegible]	282	2.8	[illegible]	[illegible]	[illegible]	29	[illegible]	4.1
000	28	275	5.5	28	303	2.7	29	197	[illegible]	26	281	[illegible]	30	211	2.6	27	343	[illegible]	24	301	4.4	30	[illegible]	5.0	23	115	[illegible]	[illegible]	298	2.3	[illegible]	[illegible]	[illegible]	27	210	5.9
500	25	278	5.5	28	302	2.7	28	219	4.0	25	269	4.8	30	231	[illegible]	27	15	[illegible]	20	307	4.4	31	299	6.4	22	111	[illegible]	[illegible]	281	2.3	[illegible]	[illegible]	[illegible]	25	212	4.9
000	20	276	7.3	27	309	3.3	24	237	6.7	23	288	[illegible]	30	250	[illegible]	27	289	4.8	11	321	6.6	20	[illegible]	7.4	[illegible]	[illegible]	[illegible]	20	81	1.9	[illegible]	[illegible]	[illegible]	23	218	3.0
500	15	278	9.1	26	315	4.2	18	258	9.1	20	283	9.1	30	243	4.0	20	287	[illegible]	12	[illegible]	8.7	18	[illegible]	9.2	10	[illegible]	[illegible]	19	292	4.4	[illegible]	[illegible]	[illegible]	20	[illegible]	2.7
000	11	284	10.2	26	308	5.1	18	272	11.7	18	288	12.1	30	262	5.4	18	91	8.8	11	[illegible]	10.6	11	[illegible]	[illegible]				13	288	5.6				19	256	4.7
500				26	297	[illegible]	16	286	[illegible]	11	294	14.3	27	268	7.2	14	[illegible]	13.3	10	311	13.0							18	279	9.0				14	278	8.8
000				25	294	10.0	14	288	[illegible]	10	277	16.3	27	271	9.7	11	[illegible]	14.9										16	274	10.3						
500				23	292	10.8	12	280	21.9				[illegible]	[illegible]	[illegible]													18	273	11.9						
000				12	280	10.3							11	290	10.0													11	268	12.4						
500				10	269	10.0							[illegible]	[illegible]	11.3																					
000													10	[illegible]	14.7																					

Altitude (meters) m s l	Spokane, Wash. (725 m.)			Washington D. C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface	30	212	[illegible]	28	264	1.8
0	-	-	-	28	268	3.7
000	30	213	5.2	27	267	5.0
500	30	224	4.7	27	275	6.9
000	28	225	4.5	24	282	9.2
500	26	238	[illegible]	21	283	11.5
000	22	235	[illegible]	20	275	12.4
500	15	263	5.6	10	292	12.5

These free air resultant winds are based on pilot balloon observations made [illegible] W = 270°): speeds in meters per second.
ar 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°;

RAWIN DATA

Average monthly resultant winds

Table 5.2 APRIL 195

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (771 m.)			Bismarck, N. Dak. (495 m.)			Brownsville, Tex. (7 m.)			Caribou, Maine (191 m.)			Charleston, S. C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N. C. (275 m.)			Hatteras, N. C. (3 m.)			International Falls, Minn. (358 m.)			Little Rock Ark. (80 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	0	322	1.6	30	113	3.7	28	48	1.4	30	123	5.2	30	318	1.5	29	193	1.8	30	297	0.2	30	202	0.2	30	264	1.4	30	239	1.8	30	14	1.2	30	164	1
500	-	---	-	-	-	---	-	-	--	30	145	8.7	30	293	1.6	29	236	5.2	30	258	1.6	--	---	----	30	246	4.5	30	252	5.7	29	27	1.6	29	201	3
1,000	--	---	---	30	168	5.4	27	306	2.9	30	154	8.0	30	308	2.2	29	260	6.1	30	271	4.7	---	---	----	30	259	7.0	29	266	7.0	29	35	2.4	29	220	5
1,500	-	---	--	30	175	5.5	27	328	4.7	29	173	4.8	30	294	3.1	28	271	5.5	30	269	7.9	30	214	.2	30	267	8.1	28	276	7.4	30	8	2.1	29	240	6
2,000	30	282	3.1	30	218	5.0	27	341	7.0	29	188	2.8	30	292	4.0	27	279	6.5	30	272	9.6	30	261	2.9	30	271	8.3	28	274	7.4	30	346	2.8	29	258	7
2,500	30	288	6.9	30	261	5.9	26	351	9.9	29	224	4.3	30	269	4.3	26	277	7.0	29	277	11.0	30	260	4.9	30	276	9.4	27	280	8.2	30	333	3.7	29	264	8
3,000	30	280	7.9	30	293	7.3	26	311	11.0	29	259	3.8	30	263	4.2	25	277	7.1	29	280	11.8	30	264	6.7	30	278	10.7	27	278	9.5	30	325	5.0	29	272	10
4,000	29	273	10.2	28	273	10.1	26	295	11.6	29	279	7.6	28	268	7.8	23	282	9.2	28	281	13.6	28	273	8.0	30	283	12.5	26	277	11.9	29	307	5.7	29	275	13
5,000	29	277	10.8	28	278	12.1	23	296	13.0	29	284	11.3	27	281	9.5	22	277	9.8	28	285	14.9	28	274	10.8	28	278	15.2	26	273	13.4	29	306	9.0	28	273	15
6,000	28	281	11.8	28	281	13.1	23	302	13.9	29	282	12.6	26	285	10.2	21	279	10.6	27	284	16.0	26	281	12.7	26	277	15.9	23	280	12.1	29	306	11.4	28	278	17
8,000	26	283	16.9	27	278	16.9	21	306	15.2	26	277	17.0	25	283	14.5	18	292	13.8	25	285	18.2	21	293	14.2	19	273	18.5	23	288	15.8	28	296	14.0	22	270	18
10,000	25	282	16.6	25	288	22.0	18	302	17.8	17	278	21.6	24	289	13.6	13	290	13.7	23	280	21.8	16	288	13.7	14	287	22.5	18	290	18.2	20	284	18.2	19	269	21
12,000	16	279	18.6	19	271	28.4	13	284	11.8	13	273	28.3	20	270	11.0	11	284	21.0	17	292	22.3				11	289	26.9	15	284	19.7	18	286	15.7	14	279	21
14,000													18	266	9.4				15	280	23.8										13	298	14.8	10	270	21
16,000													11	230	6.1				12	272	17.3															

Altitude (meters) m.s.l.	Medford, Oreg. (404 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			New Orleans, La. (6 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P. R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria Calif. (72 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	334	2.8	30	74	1.3	28	279	1.3	30	222	0.9	30	116	1.7	30	268	3.3	30	105	2.8	30	21	1.2	30	109	3.7	29	63	3.0	30	353	1.6	29	265	2
500	30	332	2.6	30	96	1.6	26	275	4.1	30	228	3.7	30	168	3.4	29	286	4.6	21	57	4.2	--	---	----	30	125	6.1	29	78	6.8	30	345	2.3	29	341	3
1,000	30	319	2.9	30	86	2.7	27	287	4.1	30	235	6.2	30	188	3.0	26	295	3.9	20	87	2.3	30	21	1.2	30	144	6.3	29	83	5.7	30	2	3.0	29	357	3
1,500	30	277	3.7	30	2	1.8	26	272	6.8	28	258	7.1	30	231	4.1	29	295	3.8	22	230	2.2	30	295	2.3	30	188	4.4	29	79	5.3	29	316	4.0	29	3	4
2,000	30	315	3.6	30	44	1.3	26	269	8.2	27	273	9.0	30	251	4.6	30	302	3.7	27	249	5.9	30	298	4.6	30	234	4.7	28	76	4.2	30	303	4.9	29	339	3
2,500	30	299	4.6	30	308	1.3	25	270	9.7	27	277	10.3	29	273	5.5	30	302	4.2	26	264	8.3	30	304	7.5	30	259	5.7	28	76	3.4	30	296	6.8	29	311	4
3,000	29	266	6.1	30	307	1.7	26	266	11.4	27	280	11.6	30	270	7.4	30	301	5.3	28	277	10.1	30	302	9.8	30	272	8.0	28	86	2.3	30	297	8.4	29	303	4
4,000	29	256	10.3	30	241	4.8	25	270	12.4	27	274	13.1	28	260	9.5	28	292	7.1	30	283	12.7	28	296	12.9	30	280	11.2	28	295	1.3	30	296	11.0	29	295	7
5,000	29	277	12.6	29	283	9.0	25	274	11.6	26	280	15.4	25	282	12.1	28	286	9.2	30	288	14.6	27	290	15.2	30	283	13.9	28	268	4.8	29	294	12.2	28	293	7
6,000	27	264	14.8	29	289	13.3	26	266	15.7	25	276	17.3	28	279	15.2	28	283	10.9	28	285	17.8	25	288	16.5	29	283	15.5	28	267	7.7	29	293	14.0	28	288	9
8,000	21	272	15.7	28	281	20.0	26	261	19.6	24	274	21.8	27	272	19.2	27	283	14.2	25	281	17.7	23	279	19.5	28	277	21.3	25	273	14.9	26	281	16.6	28	282	13
10,000	15	264	19.1	26	288	25.1	17	280	21.2	17	284	23.8	18	271	22.2	22	286	13.2	23	271	22.0	19	282	22.6	22	277	27.5	26	275	23.6	22	285	17.5	25	279	13
12,000				21	288	35.1				14	279	24.2	15	271	25.0	17	281	16.2	18	292	24.3	13	282	18.9	16	276	34.2	26	266	28.3	17	274	18.6	23	276	13
14,000				16	273	26.2																10	286	15.4				25	271	25.7	13	268	14.9	19	277	15
16,000																												23	272	15.2				14	287	12
18,000																																		10	275	12

Altitude (meters) m.s.l.	Santa Cruz, Marie Mich. (21 m.)			Spokane, Wash. (716 m.)			Tatoosh Island, Wash. (33 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	28	358	1	30	24	2	30	30	2.8
500	28	21	1	--	---	----	29	15	3
1,000	27	350	1	29	350	2	30	357	4.7
1,500	27	325	1	29	1	1.7	28	223	5.1
2,000	25	7	1	29	24	4	29	7	5
2,500	25	299	4	30	341	6	29	12	6
3,000	24	294	7.2	30	5	7.7	28	11	7.3
4,000	5	298	10.9	30	347	12	29	358	8.7
5,000	4	291	14.2	30	10	14	29	11	11
6,000	4	286	16.8	27	358	14	24	276	16.1
8,000	17	281	22.4	11	351	14	19	285	20.9
10,000	11	285	21.5	10	1	18	10	1	11

[illegible] are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL National Summary.

able 30.--Solar radiation intensities, tabulated in langleys.

APRIL 1950

TABLE MOUNTAIN, CALIF.

Date	Sun's zenith distance: A M 78.7°	75.7°	70.7°	60.0°	0.0°	P M 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7 30 a. m.	1 30 p. m.
	Air mass: 3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
pril										Mb	Mb
----	----	----	----	1.41	----	----	----	----	----		
----	----	----	----	1.45	----	----	----	----	----		
----	---	---	----	1.38	----	----	---	---	---		
1---	1.08	1.16	1.26	1.43	---	---	---	---	---		
5---	----	----	--	1.37	---	---	----	---	---		
7---	1.02	1.12	1.23	1.36	---	-	----	---	---		
9---	.98	1.08	1.20	1.33	---	-	----	----	----		
0---	.91	1.01	1.14	1.30	----		----	----	----		
ver-											
ages	1.00	1.09	1.21	1.38	---	----	-	---	---		
epar-											
ures	-.04	-.04	-.03	-.01	----	- --	--	---	-		

LINCOLN, NEBR.

	Air mass: 4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
pril											
----	----	----	1.00	1.18	1.36	----	---	---	----	4.2	4.2
----	----	----	----	1.22	1.38	1.20	1.05	0.94	0.83	3.7	3.8
----	----	----	----	----	1.43	1.12	1.01	.88	.79	2.5	2.0
1---	----	----	----	----	1.40	1.09	.86	-	---	2.3	2.7
0---	----	----	----	.96	1.34	----	---	---	---	4.2	3.5
1---	----	----	----	.94	1.20	----	----	---	---	4.0	6.1
3---	----	----	----	----	1.16	.88				6.6	14.2
ver-											
ages	----	----	1.00	1.08	1.32	1.07	.97	.91	.81		
epar-											
ures	----	----	+.03	-.10	-.12	-.09	+.01	+.08	+.11	---	-

MADISON, WIS.

	Air mass: 4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
pril											
----	0.81	1.03	1.14	1.24	1.50	1.25	----	----	----	2.6	2.7
----	----	----	----	----	1.18	---	---	---	---	4.8	5.8
4---	.76	.84	.96	1.14	1.40	----	---	---	---	2.5	2.3
4---	.60	.74	.87	1.13	1.46	----	---	---	---	3.7	4.6
3---	.77	.92	1.04	1.18	1.41	----	---	---	---	4.8	4.2
1---	.71	.86	.96	1.15	1.35	1.07	---	---	---	4.6	3.5
ver-											
ages	.73	.88	1.00	1.17	1.38	1.16	----	----	----	-	
epar-											
ures	+.04	+.04	+.01	.00	-.02	-.01	----	----	----	---	---

BOSTON, MASS.

	Air mass: 4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96
pril (No observations taken instrument removed temporarily)									

Extrapolated

BLUE HILL, MASS.

Date	Sun's zenith distance: A M 78.7°	75.7°	70.7°	60.0°	0.0°	P M 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7 30 a. m.	1 30 p. m.
	Air mass: 4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
April										Mb	Mb
1---	0.94	1.05	1.18	1.34	---	---	--	--	----	2.1	2.6
2---	---	--	---	---	---	---	---	0.93	0.75	0.63	7.7	7.2
8---	---	--	---	--	---	-	1.03	.89	.78	4.5	3.7
10---	----	1.02	1.15	1.32	1.45	---	---	---	---	1.7	1.6
12---	.71	.87	-	-	---	1.18	1.02	.87	.73	4.0	3.8
15---	.50	.64	.81	1.04	-	---	---	-	---	4.0	5.4
16---	---	---	1.05	1.22	---	---	1.09	.98	.88	4.8	3.7
17---	---	--	--	1.27	---	---	---	---	---	5.6	4.0
27---	---	-	--	---	1.52	.79	---	---	---	8.0	7.1
30---	.56	.77	.91	1.05	-	-	---	---	---	5.2	4.9
Averages	.71	.87	1.03	1.21	1.44	.98	1.01	.87	.73	-	-
Departures	-.07	-.02	.00	+.02	+.04	-.1	-.01	+.05	+.07	--	--

TACUBAYA, D. F., MEXICO

	Air mass: 3.83	3.07	2.31	1.55	*0.77	1.55	2.31	3.07	3.83		
April											
1---	-	-	--	0.64	---	----	---	----	---	8.0	6.7
3---	---	---	---	1.42	---	---	--	---	---	8.1	6.3
4---	----	----	0.86	.88	---	-	---	----	---	6.8	7.2
10---	----	-	----	.83	---	-	---	----	---	6.9	7.3
11---	---	--	1.16	1.33	---	-	--	---	----	6.4	4.4
12---	--	0.30	.45	.72	---	----	---	---	----	7.9	8.3
13---	----	.58	.78	.84	---	-	---	----	---	7.1	8.3
15---	---	-	.41	.43	---	---	---	---	---	8.8	11.3
16---	---	-	---	.58	---	---	---	---	---	9.7	9.2
17---	---	---	---	.68	---	---	---	---	---	8.5	8.3
18---	---	.51	.72	.99	---	-	---	---	---	10.8	10.5
19---	---	---	---	.92	---	---	---	---	---	10.5	11.2
20---	---	.49	.56	.58	---	---	--	---	---	10.1	12.5
22---	---	---	.65	.69	-	-	--	---	---	9.3	9.7
24---	---	---	.41	.67	---	---	---	---	---	10.1	10.0
25---	---	.70	.72	.93	--	---	---	---	---	9.2	8.3
26---	---	---	-	.96	---	---	---	---	---	10.3	10.0
27---	---	---	---	.94	---	---	---	---	---	10.0	10.9
28---	0.38	.45	.59	.69	---	---	---	0.56	0.47	9.4	11.1
29---	---	---	---	.76	---	---	---	---	---	8.4	8.1
30---	.39	.47	.53	.77	---	---	---	---	---	7.6	7.2
Averages	.39	.50	.66	.81	---	---	---	.56	.47	- -	--
Departures	---	---	---	---	---	---	---	---	---	---	---

Beginning with this issue, a new station, Tacubaya, D. F., Mexico, is being added to Table 30 (normal incidence) and will appear regularly in future issues. The station is located at the Observatory in that town which is a suburb in southwest Mexico City. The Observatory is operated by the Mexican Meteorological Service and the solar radiation section is under the supervision of Senor Miguel Làrraga. Coordinates of the station are: Latitude 19°24'N; longitude 99°12'W; elevation 2300 meters. Instrumental equipment includes an Eppley normal incidence pyrheliometer (favorably checked against the Smithsonian silver-disk pyrheliometer) and a Leeds & Northrup Micromax potentiometer. Owing to a large dry lake and several smaller ones just north of Mexico City and two cement plants near the Observatory, the atmosphere over the city is generally severely vitiated with dust and smoke. This accounts for the comparatively very low values of normal incidence radiation recorded at that high elevation.

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface (langleys).

An explanation of Tables 30 and 33 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

able 31.--Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during April, 1950

ate----------	2	3	4	5	6	7	8	Average	9	10	11	12	13	14	15	Average	16	17	18	19	20	21	22	Average
angleys-------	216	65	354	28	190	340	279	210	206	411	133	359	88	136	206	220	347	202	348	181	79	182	234	239
ate----------	23	24	25	26	27	28	29	Average																
angleys-------	80	282	337	29	330	137	42	177																

able 32.--Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during April 1950.

ate----------	2	3	4	5	6	7	8	Average	9	10	11	12	13	14	15	Average	16	17	18	19	20	21	22	Average
angleys-------	62	54	67	22	107	97	99	73	86	74	80	89	75	79	83	81	96	72	91	111	85	86	92	85
ate----------	23	24	25	26	27	28	29	Average																
angleys-------	67	136	88	21	86	67	35	71																

ote.--Langley is the unit used to denote one gram calorie per square centimeter.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

Table 33. APRIL 195

	Honolulu, T. H.	Pearl Harbor, T. H.	Brownsville, Texas	Gainesville, Fla.	Apalachicola, Fla.	Lake Charles, La.	Fort Worth, Texas	La Jolla, Calif.	Charleston, S. C.	Griffin, Ga.	Riverside, Calif.	Albuquerque, N. M.	Hatteras, N. C.	Oklahoma City, Okla	Raleigh, N. C.	Oak Ridge, Tenn.	Nashville, Tenn.	Fresno, Calif.	Davis, Calif.	Washington, D. C.	Columbia, Mo.	Soda Springs, Calif.	Seabrook, N. J.	Grand Lake, Colo.	Salt Lake City, Utah
1950																									
April 2-----	719	709	335	---	622	485	485		587	504	472	657	542	---	516	477	372	626	534	564	202	666	549	253	20
April 3-----	612	454	477	562	594	399	640		580	636	446	544	651	601	523	516	312	650	529	267	48	679	301	246	47
April 4-----	674	559	453	409	337	415	664		421	133	441	683	363	670	395	217	123	617	524	433	296	688	474	528	60
April 5-----	617	508	427	143	485	686	683		241	623	387	476	133	660	122	526	348	643	349	177	(354)	160	83	695	35
April 6-----	464	561	548	708	713	669	611		559	712	510	621	162	485	556	599	641	560	450	251	643	216	502	385	53
April 7-----	673	559	170	693	703	603	584		707	697	360	562	(578)	597	687	645	623	503	208	656	566	140	616	677	50
April 8-----	511	435	547	669	691	417	326		663	662	231	312	641	547	643	611	575	214	247	358	524	106	442	595	57
Averages-----	610	541	422	531	592	525	570		537	566	407	551	439	594	492	513	428	545	406	387	376	379	424	483	46
Departures---	+37	+13	---	---	---	---	+57		---	---	-53	---	---	---	---	+16	+11	+42	-76	+11	-73	-91	---	+22	-
April 9-----	415	402	379	---	695	397	528		633	623	312	577	642	322	598	532	399	603	437	590	162	392	601	302	21
April 10-----	543	585	515	---	663	460	578		642	693	548	691	199	610	284	592	604	684	533	230	(260)	608	536	462	61
April 11-----	505	365	637	595	642	473	691		574	256	594	620	656	639	491	642	631	693	540	288	628	714	300	659	62
April 12-----	533	510	634	700	715	425	175		668	706	598	188	645	517	637	645	467	663	337	471	(259)	544	481	708	62
April 13-----	267	250	423	599	458	240	93		553	580	530	649	512	623	598	583	471	560	556	485	(691)	229	442	717	55
April 14-----	447	355	480	525	561	624	426		707	727	537	661	(723)	440	678	581	568	704	752	636	664	735	398	499	16
April 15-----	416	461	227	659	734	690	283		656	724	586	575	587	312	662	548	590	683	795	394	676	727	511	250	58
Averages-----	447	418	471	616	638	473	396		633	615	529	566	566	495	564	589	533	655	564	442	477	564	467	514	48
Departures---	-73	-77	---	---	---	---	-51		---	---	+45	---	---	---	---	+65	+143	+100	+10	+43	+107	+5	---	-28	-1
April 16-----	563	551	307	646	676	383	99		702	718	592	722	710	143	680	688	640	683	469	635	617	701	643	543	64
April 17-----	612	611	316	670	674	233	361		687	544	590	710	683	391	639	395	234	621	550	574	316	730	534	681	57
April 18-----	685	700	506	331	275	672	684		383	273	572	653	(422)	653	339	223	281	657	564	291	---	(750)	327	651	62
April 19-----	708	716	532	540	625	620	195		479	427	563	708	(470)	654	507	280	135	679	578	462	---	737	516	732	59
April 20-----	709	724	283	535	682	671	657		595	680	533	713	442	722	160	427	432	677	536	199	494	753	95	722	62
April 21-----	321	546	553	726	736	543	417		722	732	296	713	692	682	681	665	637	624	514	400	439	737	246	602	54
April 22-----	438	380	517	696	725	474	571		706	553	180	689	708	670	608	144	467	699	602	643	467	688	542	668	40
Averages-----	576	604	431	592	627	514	426		611	561	475	701	589	559	516	403	404	663	544	458	467	728	415	657	57
Departures---	+58	+93	---	---	---	---	-9		---	---	-33	---	---	---	---	-75	-52	+72	-29	+38	-5	+31	---	+103	+2
April 23-----	612	526	407	694	699	594	307		669	695	209	716	643	477	634	581	640	703	605	185	(492)	742	149	314	--
April 24-----	305	213	611	620	632	355	652		702	690	499	696	685	573	659	645	549	691	591	353	415	759	171	299	69
April 25-----	431	365	591	246	454	558	720		(631)	110	452	738	687	757	648	121	302	699	557	85	640	758	186	564	61
April 26-----	399	374	455	463	396	656	709		532	698	176	702	522	711	432	678	706	703	692	547	(580)	748	522	426	63
April 27-----	557	442	341	576	448	120	527		581	562	95	711	575	219	591	617	441	724	599	573	200	760	595	186	26
April 28-----	524	353	427	560	447	291	243		597	589	424	755	665	275	627	482	342	735	745	528	(83)	807	486	382	--
April 29-----	471	642	583	603	485	319	289		671	243	491	750	(693)	391	459	485	298	744	601	174	---	787	163	535	--
Averages-----	471	416	488	595	509	413	492		626	513	335	724	638	486	579	516	468	714	627	349	402	766	325	386	55
Departures---	-72	-81	---	---	---	---	+24		---	---	-137	---	---	---	---	+45	+31	+129	+64	-98	-45	+24	---	-99	+

Accumulated Departures January 1 to April 29, 1950

	+154	+77	---	---	---	---	---		---	---	-2023	---	---	---	---	---	+1561	+5929	-7	-1162	-42	+56	---	-560	+14

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Mr. I. F. Hand, Official in Charge of the Solar Radiation Units at Blue Hill and Boston, Mass., is on an extended inspection trip during which he will visit more than 70 stations in the United States maintaining solar radiation records. Many of these stations are relatively new, having been in operation for periods ranging up to about a year. However, publication of their records have awaited inspection of equipment and exposures and verification of reliability of data. As each of these stations receives Mr. Hand's approval for publication of its record, it will be included in Table 33 of the next forthcoming issue of this bulletin. In this issue, 11 stations are being added to Table 33 (radiation received on a horizontal surface) and will appear regularly in future issues. Following is a list of these stations, together with a brief description of each.

1. Brownsville, Texas: Latitude 24°54' N.; longitude 97°26' W.; elevation 6.5 meters; Brown strip-chart recorder; rather poor exposure, but difficult to improve upon - some water spray from cooling system occasionally strikes pyrheliometer; practically no atmospheric contamination. Equipment located at Weather Bureau Airport Station.

2. Gainesville, Florida: Latitude 29°39' N.; longitude 82°21' W.; elevation 59 meters; Leeds & Northrup potentiometer; good exposure, brief and unimportant shading caused by buildings to the north. Equipment located at University of Florida, College of Engineering, under direction of Prof. H. M. Hawkins.

3. Apalachicola, Florida: Latitude 29°44' N.; longitude 84°59' W.; elevation 5 meters; Brown strip-chart recorder; excellent exposure, no shading; atmosphere free of pollution. Equipment located at Weather Bureau Office.

4. Lake Charles, Louisiana: Latitude 30°13' N.; longitude 93°09' W.; elevation 96 meters; Brown strip-chart recorder; good exposure, no shading; mostly free of pollution except for some dust contamination. Equipment located at Weather Bureau Office.

5. Fort Worth, Texas: Latitude 32°49' N.; longitude 97°21' W.; elevation 215 meters; Brown Electronik strip-chart recorder; pyrheliometer located on roof of Administration Building; occasional smoke pollution. Equipment located at Weather Bureau Airport Station.

(continued on bottom of next page)

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

ble 33—Continued

APRIL 1950

	New York, N. Y.	State College, Pa.	Lincoln, Nebr.	Newport, R. I.	Put-in-Bay, Ohio	E. Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Amherst, Mass.	Lynn, Mass.	Ithaca, N.Y.	Twin Falls, Idaho	Albany, N. Y.	E. Lansing, Mich.	Madison, Wis.	Portland, Me.	Toronto, Ont.	Ottawa, Ont.	Caribou, Me.	Summit, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska	Aklavik, MacKenzie
1950																								
ril 2-----	558	497	446	431	365	353	362	327		348		193	183	179	244	188	186	175	142	345	230	497		348
ril 3-----	110	111	58	148	99	165	155	125		133		539	49	301	191	86	333	(244)	193	231	418	463		416
ril 4-----	468	390	482	296	106	219	507	442		514		592	409	57	143	173	78	39	104	557	565	500		433
ril 5-----	68	273	494	71	286	71	68	62		80		324	67	147	607	82	186	138	55	535	542	475		391
ril 6-----	505	525	591	308	581	204	364	318		417		350	596	527	604	377	607	623	489	339	419	195		356
ril 7-----	643	629	468	514	486	425	551	490		592		390	646	342	472	465	514	592	544	487	586	305		363
ril 8-----	485	152	425	561	370	419	464	371		526		418	628	419	396	335	468	362	373	223	448	220		386
erages-----	406	368	423	333	328	265	353	305		373		401	368	282	380	244	339	310	271	388	457	379		385
partures---	+58	+2	+30	-65	-33	-102	-28	-23		---		-25	-9	-21	+8	-68	+20	---	---	+35	---	---		---
ril 9-----	473	634	361	419	289	383	354	339		403		436	361	207	61	519	584	602	392	357	149	236		414
ril 10-----	636	316	272	647	273	584	676	586		629		550	663	173	95	626	384	585	452	378	277	438		458
ril 11-----	279	299	570	313	56	280	247	233		293		593	277	61	270	338	66	122	639	502	591	490		390
ril 12-----	425	259	348	543	334	571	572	528		623		594	246	213	572	267	364	191	330	481	637	320		331
ril 13-----	198	310	590	104	365	215	200	181		245		284	189	268	643	273	346	597	565	394	638	308		308
ril 14-----	228	394	658	211	513	147	266	238		321		94	410	165	652	410	564	560	580	421	630	528		328
ril 15-----	460	291	425	447	634	503	394	268		312		591	383	584	632	323	543	627	386	214	489	252		418
erages-----	385	357	461	383	352	382	387	339		404		449	361	239	418	394	407	469	478	392	487	367		378
partures---	+31	-34	+50	-23	-24	-10	+13	-6		---		-7	-10	-96	+12	+34	+33	---	---	-33	---	---		---
ril 16-----	646	619	265	613	618	482	674	588		690		564	554	486	287	642	500	572	666	312	557	484		291
ril 17-----	433	336	473	518	254	497	538	482		586		596	348	406	605	592	330	323	522	562	402	302		345
ril 18-----	265	304	276	445	473	482	634	526		646		586	486	369	255	539	533	600	169	656	169	487		426
ril 19-----	449	318	476	387	208	305	364	283		439		585	423	243	296	497	97	344	366	640	550	551		452
ril 20-----	84	268	518	154	379	228	164	115		144		598	67	174	316	87	281	216	75	585	643	512		273
ril 21-----	357	283	602	350	489	220	345	253		290		607	540	272	677	115	228	368	73	621	443	579		336
ril 22-----	688	557	585	458	584	350	472	452		490		381	335	467	444	360	445	510	422	303	183	319		464
erages-----	417	384	457	418	429	366	456	386		469		560	393	345	411	405	345	419	328	526	421	462		370
partures---	+29	-13	+11	-2	0	-44	+59	+4		---		+73	+23	-38	+4	+4	-44	---	---	+65	---	---		---
ril 23-----	97	127	569	140	351	277	176	113		166		513	131	393	214	142	575	134	385	378	422	398		587
ril 24-----	147	28	59	390	198	486	550	469		632		658	439	117	45	642	509	654	714	618	94	582		576
ril 25-----	349	57	585	660	151	629	672	551		720		636	458	144	178	672	127	433	688	306	291	375		587
ril 26-----	327	632	543	71	613	64	63	47		83		589	259	302	244	106	374	332	337	459	438	600		544
ril 27-----	235	476	608	623	331	609	648	565		630		286	456	260	297	634	192	238	518	255	588	573		502
ril 28-----	233	667	110	225	590	313	263	241		375		199	366	362	526	78	212	250	99	210	522	321		562
ril 29-----	148	186	53	87	191	75	95	87		146		467	220	246	291	543	490	685	340	566	455	503		405
erages-----	219	310	361	314	346	351	352	296		393		478	333	260	256	403	354	389	440	399	401	479		538
partures	-221	-105	-66	-146	-71	-94	-91	-79		---		-29	-45	-97	-179	+5	-37	---	---	-39	---	---		---

Accumulated Departures January 1 to April 29, 1950

	-406	-1890	+273	-3241	-1239	-3584	-1043	-637		---		+385	---	-3416	-1750	---	-147	---	---	-217	---	---		---

(continued from preceding page)

Charleston, South Carolina: Latitude 32°54' N.; longitude 80°02' W.; evation 21.6 meters; Brown strip-chart recorder; excellent exposure; casional pollution caused by large paper mill 25 miles to the east with wind favorable quadrant. Equipment located at Weather Bureau Airport Station.

Griffin, Georgia: Latitude 33°14' N.; longitude 84°25' W.; elevation 305 eters; Leeds & Northrup potentiometer; excellent exposure; some pollution used by smoke from heating plant and occasionally by trains. Equipment cated at Georgia Agricultural Experiment Station, Griffin, Ga., under rection of Prof. K. T. Holley.

Albuquerque, New Mexico: Latitude 35°03' N.; longidute 106°37' W.; evation 1630 meters; Brown strip-chart recorder; some atmospheric pollution used by industrial smoke, occasionally by dust storms, and rarely by forest es. Equipment located at Weather Bureau Office.

9. Hatteras, North Carolina: Latitude 35°13' N.; longitude 75°41' W.; elevation 3 meters; Brown strip-chart recorder; some brief shading in summer by tower in west-northwest; very infrequent occurrences of salt spray on pyrheliometer. Equipment located at Weather Bureau Office.

10. Oklahoma City, Oklahoma: Latitude 35°24' N.; longitude 97°36' W.; elevation 398 meters; Brown integrating potentiometer; considerable shading to the north by control tower. Equipment located at Weather Bureau Airport Station.

11. Raleigh, North Carolina: Latitude 35°47' N.; longitude 78°38' W.; elevation 152 meters; Leeds & Northrup potentiometer; some atmospheric pollution from burning of soft coal for heating large apartment houses and office buildings. Equipment located at State College of Agriculture & Engineering, under direction of Dr. Fred D. Cochran.

All of the above stations are equipped with Eppley 180° pyrheliometers.

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, April 1950

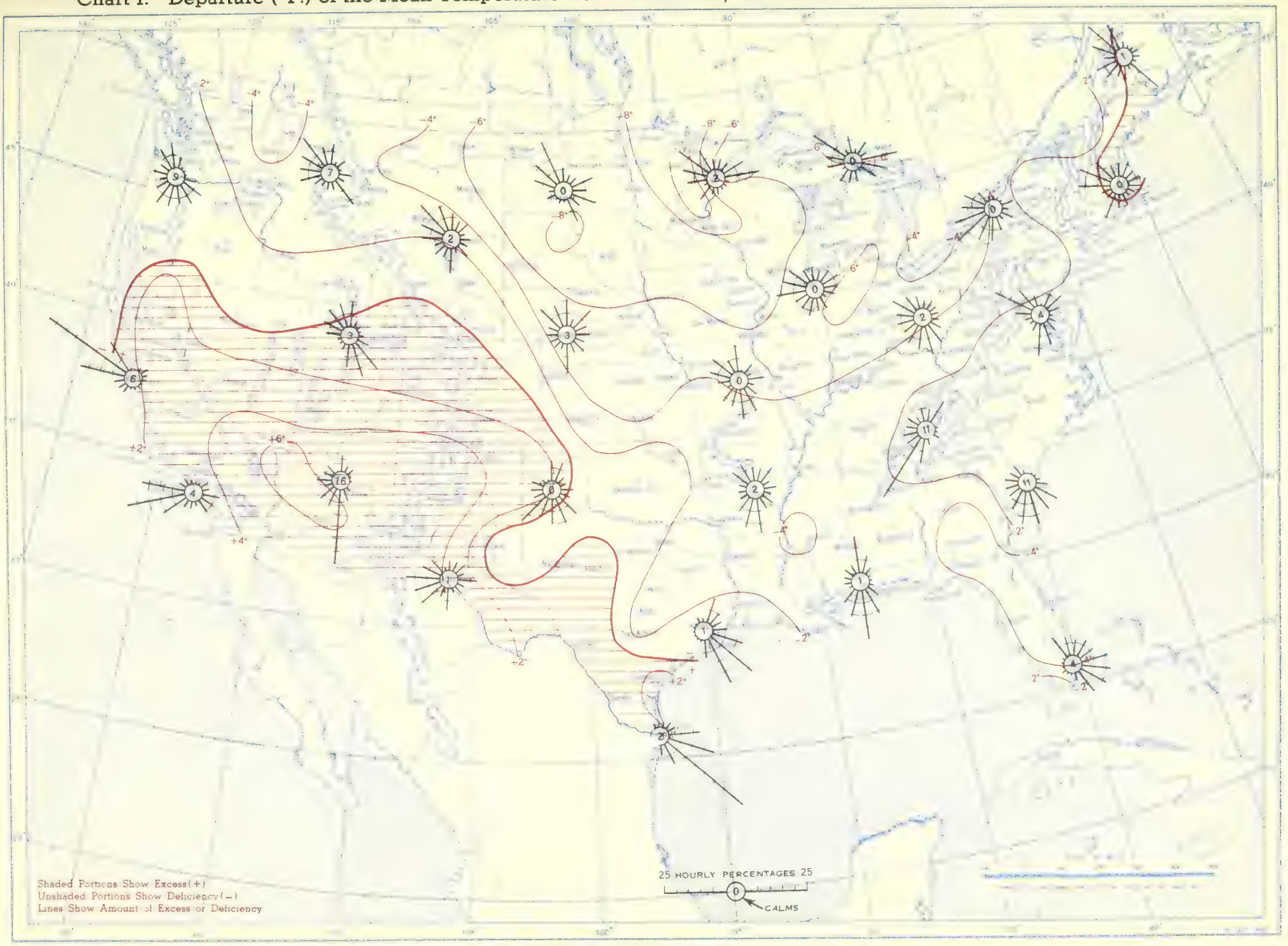
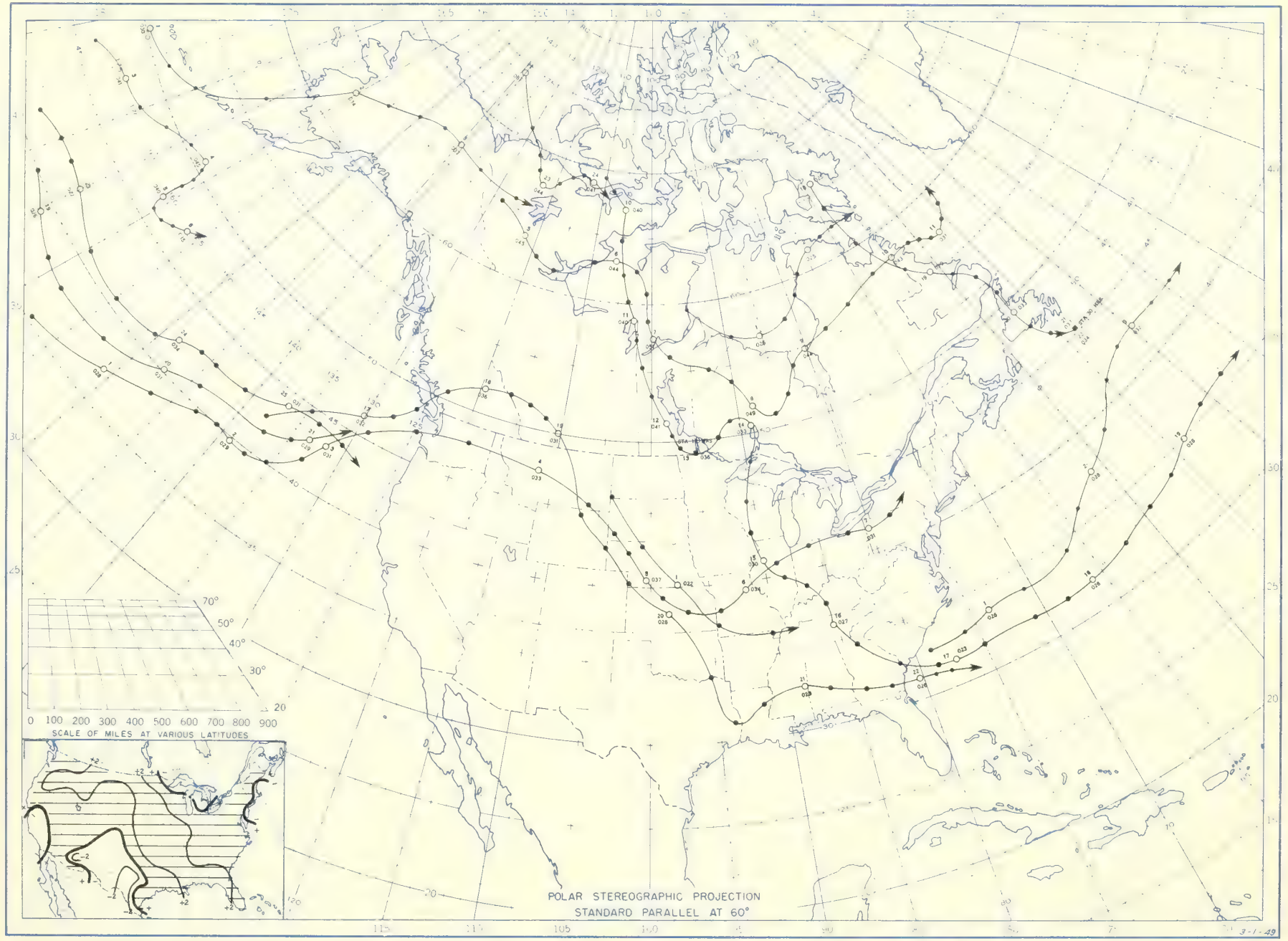


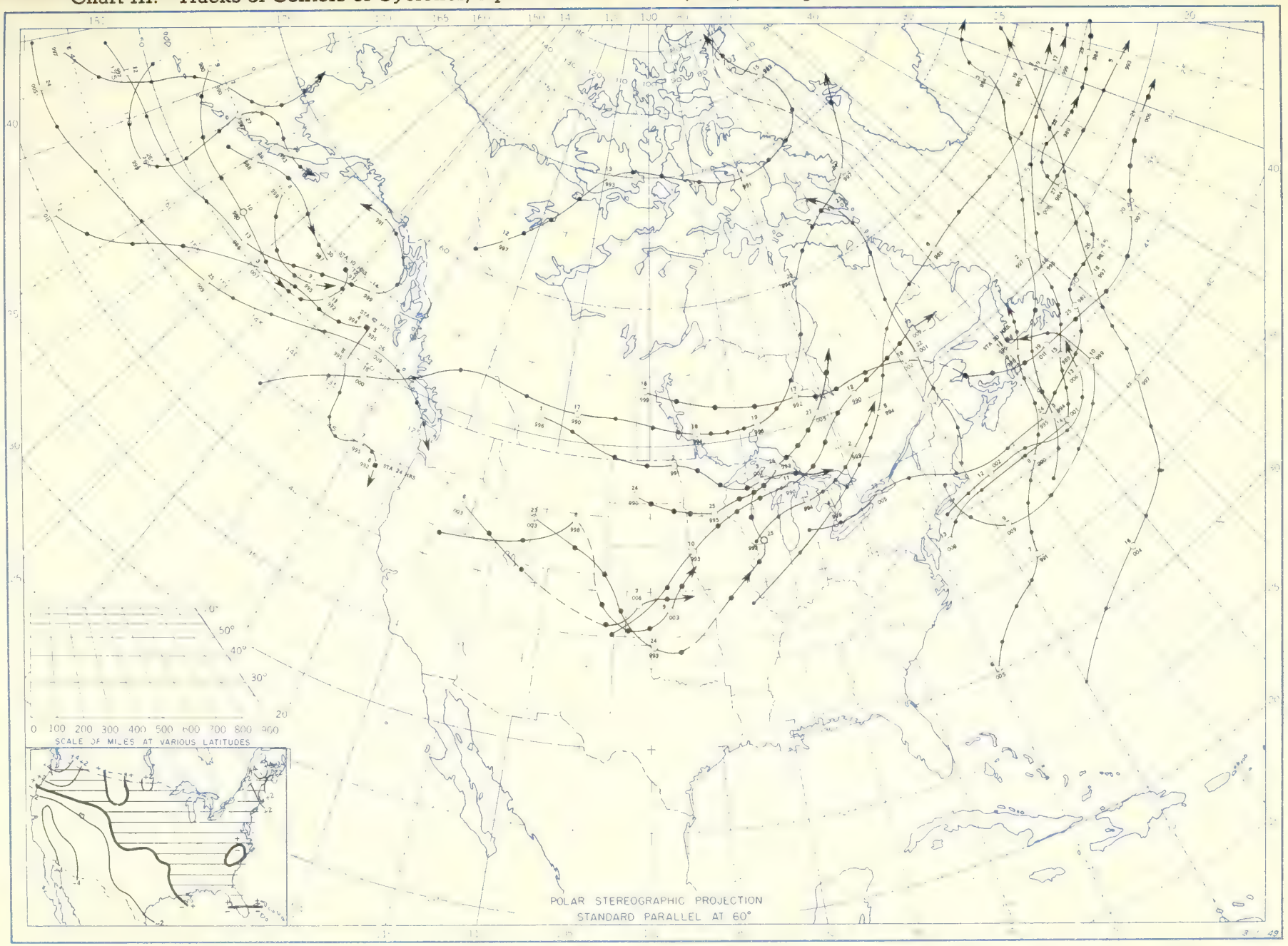
Chart II. Tracks of Centers of Anticyclones, April 1950. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart III. Tracks of Centers of Cyclones, April 1950. (Inset) Change in Mean Pressure from Preceding Month

Chart III. Tracks of Centers of Cyclones, April 1950. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time) Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, April 1950

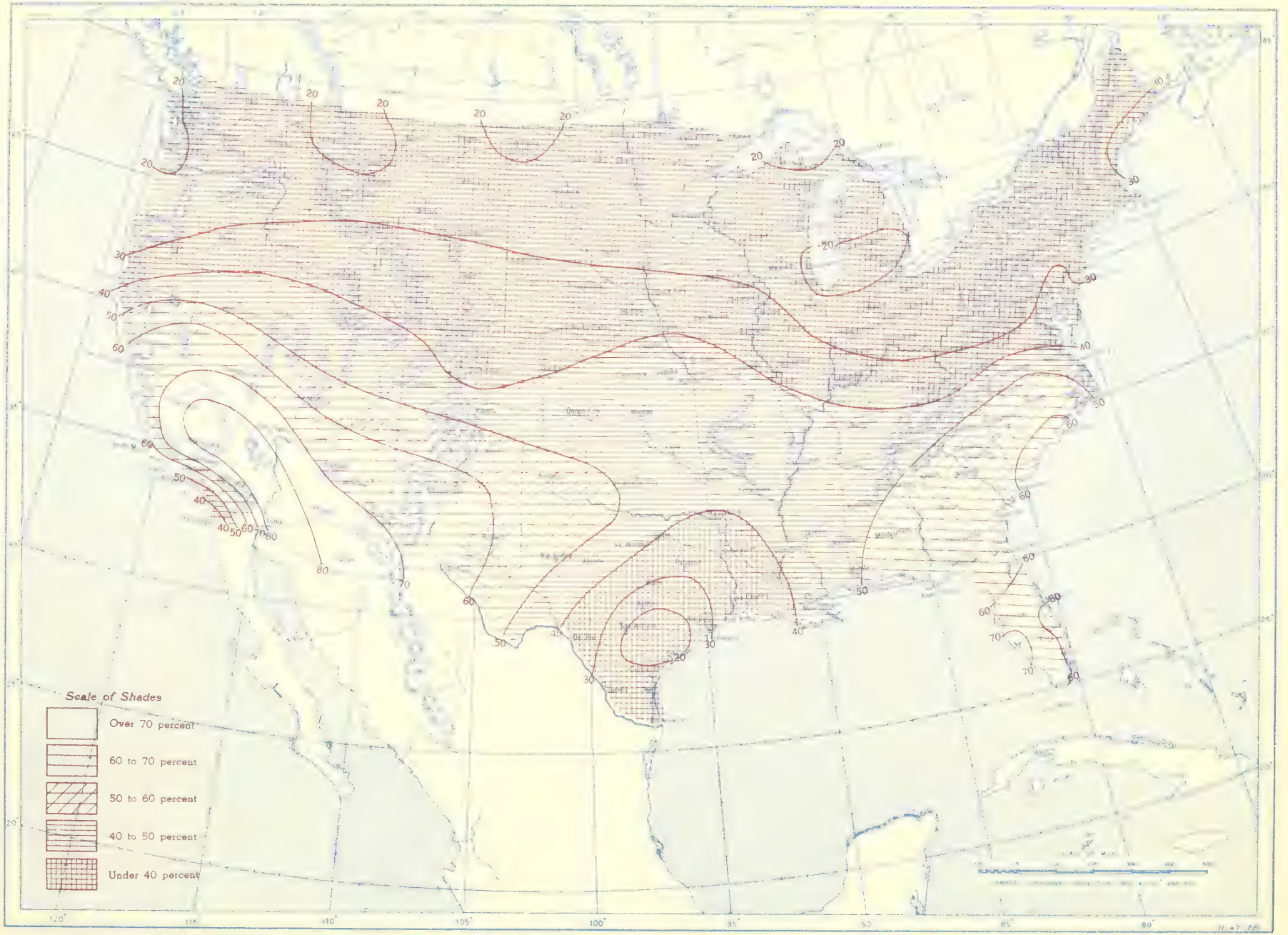


Chart V. Total Precipitation, Inches, April 1950. (Inset) Departure of Precipitation from Normal

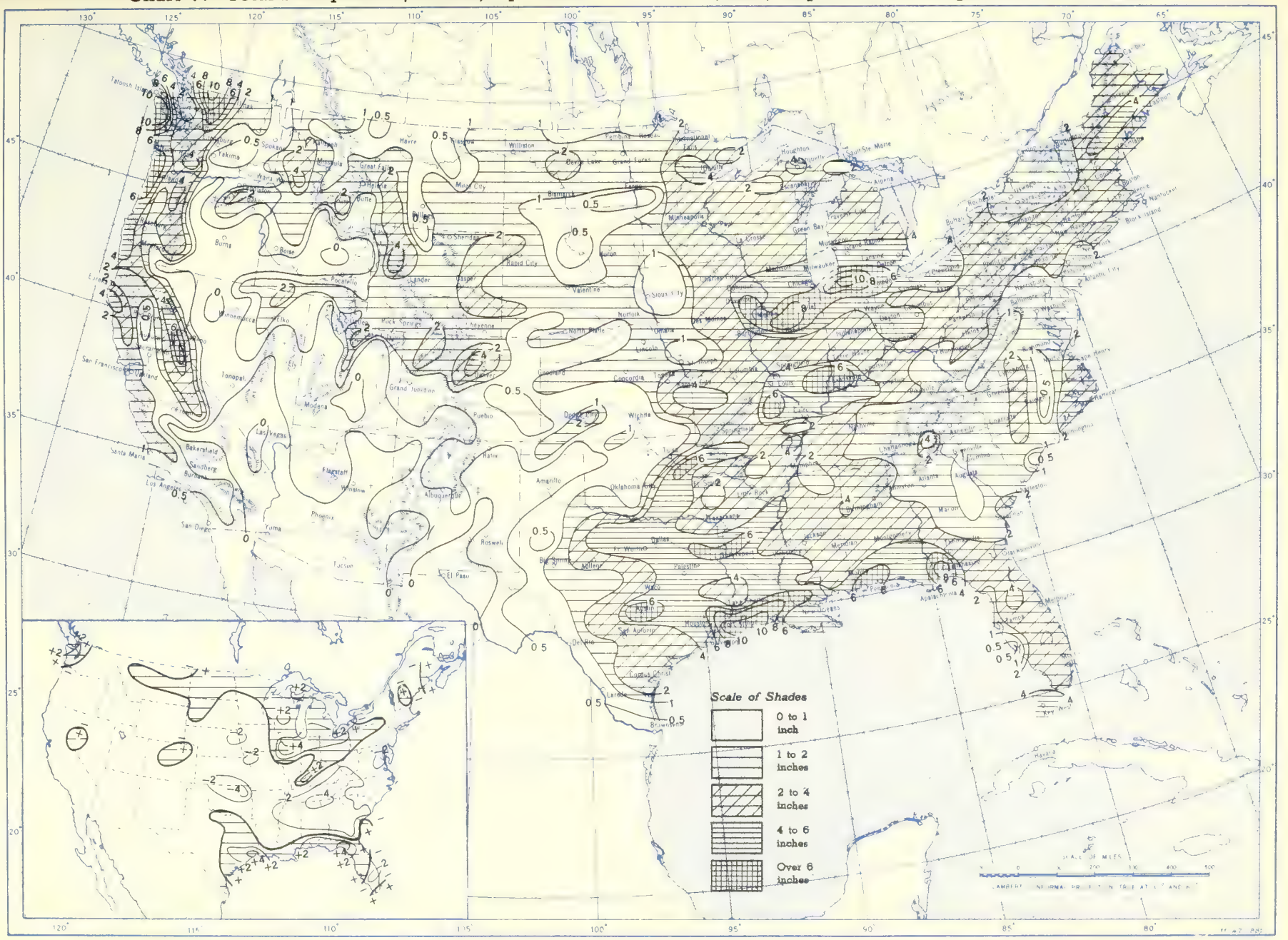


Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., April 1950

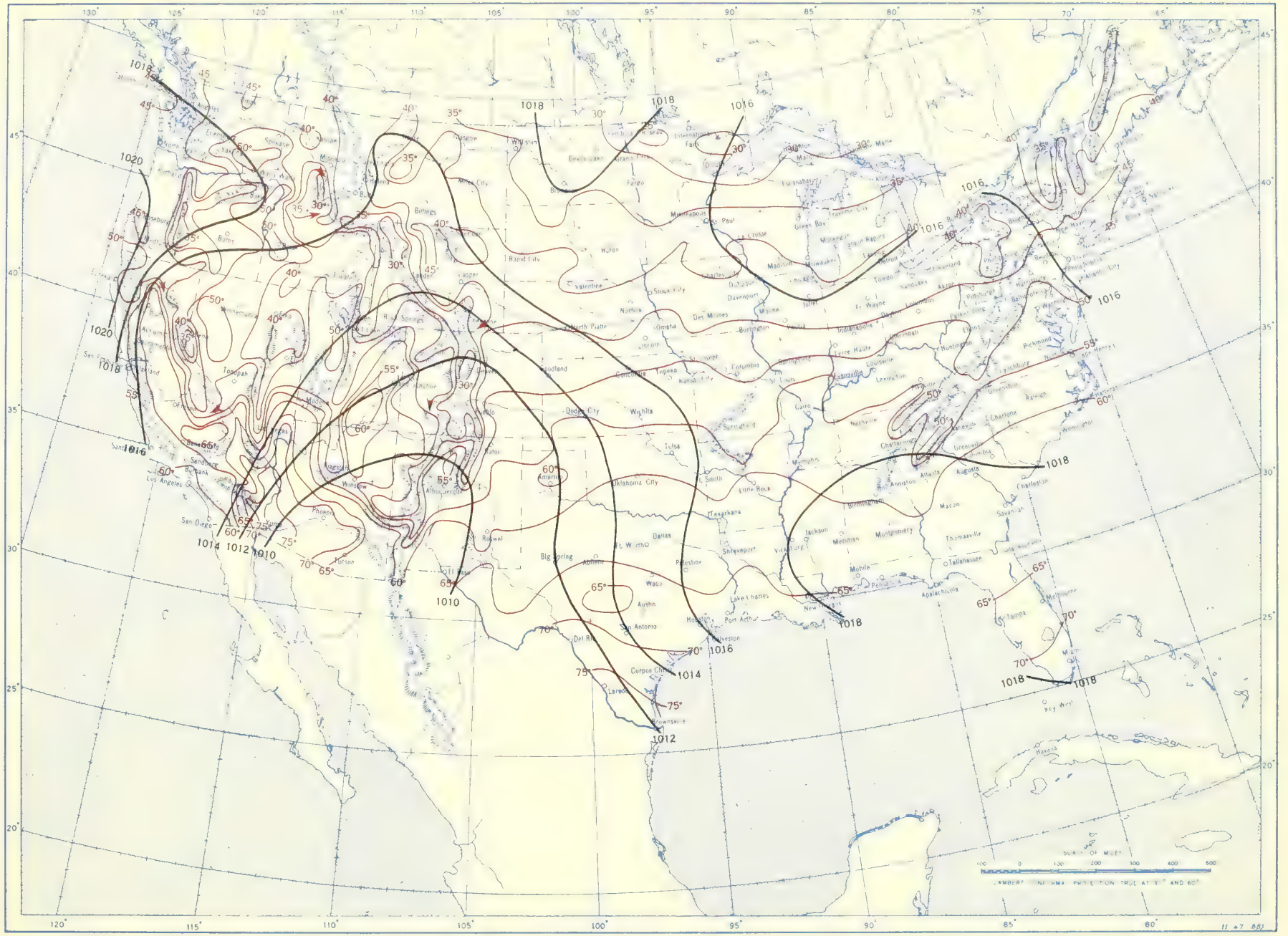
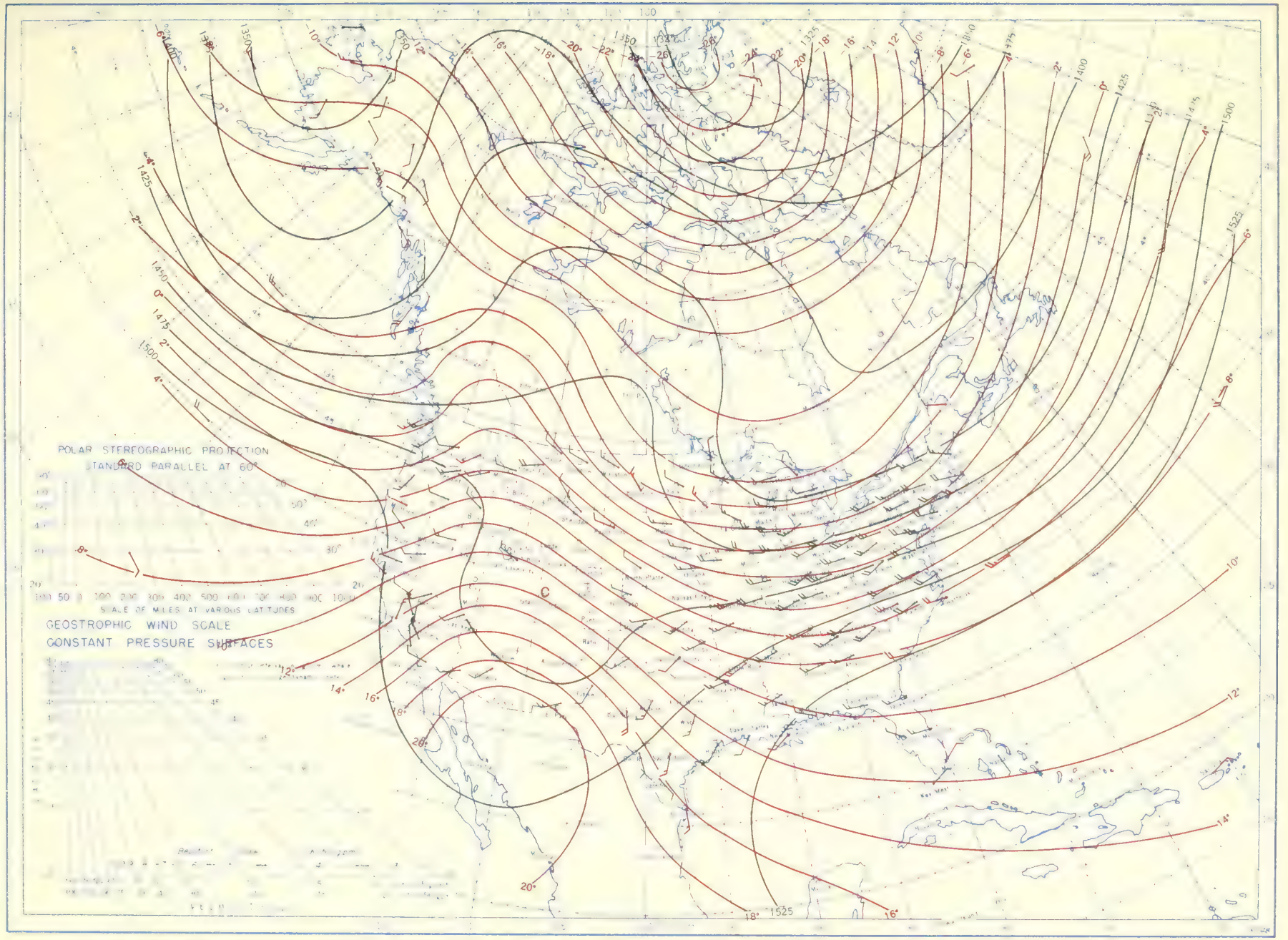

1018
1020
1016
1014
1012
1010
Seattle
Portland
San Francisco
Los Angeles
San Diego
Phoenix
Tucson
Albuquerque
El Paso
Salt Lake City
Denver
Cheyenne
Billings
Helena
Boise
Reno
Las Vegas
Pocatello
Rapid City
Pierre
Bismarck
Minneapolis
Duluth
Chicago
Milwaukee
Detroit
Toledo
Cleveland
Buffalo
Omaha
Lincoln
Kansas City
St. Louis
Des Moines
Davenport
Dodge City
Wichita
Oklahoma City
Tulsa
Amarillo
Lubbock
Abilene
Dallas
Fort Worth
Houston
Galveston
Port Arthur
Corpus Christi
San Antonio
Austin
Waco
Del Rio
Laredo
Brownsville
Big Spring
Roswell
Shreveport
Little Rock
Memphis
Nashville
Louisville
Cincinnati
Indianapolis
Fort Wayne
Columbus
Pittsburgh
Buffalo
Cleveland
Toledo
Detroit
Chicago
Milwaukee
Green Bay
Madison
Minneapolis
St. Paul
Duluth
Sault Ste. Marie
Fargo
Grand Forks
Minot
Williston
Havre
Great Falls
Miles City
Glasgow
Kalispell
Spokane
Seattle
Portland
Eugene
Medford
Klamath Falls
Boise
Pocatello
Idaho Falls
Salt Lake City
Reno
Las Vegas
Phoenix
Tucson
Albuquerque
El Paso
Roswell
Amarillo
Lubbock
Abilene
Dallas
Fort Worth
Houston
Galveston
Port Arthur
Corpus Christi
San Antonio
Austin
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Laredo
Brownsville
Big Spring
Oklahoma City
Tulsa
Wichita
Dodge City
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Kansas City
St. Louis
Springfield
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Montrose
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Farmington
Gallup
Flagstaff
Winslow
Prescott
Yuma
Blythe
Needles
Barstow
Bakersfield
Fresno
Sacramento
San Francisco
Los Angeles
San Diego
Santa Barbara
Monterey
Eureka
Redding
Medford
Klamath Falls
Burns
Pendleton
Walla Walla
Yakima
Wenatchee
Spokane
Kalispell
Missoula
Butte
Helena
Billings
Miles City
Glasgow
Havre
Great Falls
Williston
Minot
Bismarck
Fargo
Grand Forks
Duluth
Sault Ste. Marie
Marquette
Green Bay
Milwaukee
Madison
Minneapolis
St. Paul
La Crosse
Rochester
Mason City
Sioux City
Omaha
Lincoln
Des Moines
Davenport
Rock Island
Peoria
Chicago
Gary
South Bend
Fort Wayne
Indianapolis
Terre Haute
Evansville
Louisville
Lexington
Cincinnati
Columbus
Toledo
Cleveland
Akron
Youngstown
Pittsburgh
Erie
Buffalo
Rochester
Syracuse
Albany
Utica
Binghamton
Scranton
Wilkes-Barre
Allentown
Reading
Harrisburg
Lancaster
Philadelphia
Atlantic City
Trenton
Newark
New York
Bridgeport
New Haven
Hartford
Springfield
Worcester
Boston
Portland
Concord
Manchester
Burlington
Montpelier
Saint John
Fredericton
Moncton
Halifax
Sydney
Charlottetown
Quebec
Ottawa
Toronto
Hamilton
London
Windsor
Kingston
Peterborough
Sudbury
North Bay
Timmins
Sault Ste. Marie
Thunder Bay
Kenora
Winnipeg
Brandon
Regina
Moose Jaw
Saskatoon
Prince Albert
Swift Current
Medicine Hat
Lethbridge
Calgary
Edmonton
Red Deer
Grande Prairie
Fort St. John
Dawson Creek
Prince George
Kamloops
Vernon
Penticton
Nelson
Trail
Cranbrook
Kelowna
Vancouver
Victoria
Nanaimo
Prince Rupert
Terrace
Kitimat
Whitehorse
Dawson
Fairbanks
Anchorage
Juneau
Ketchikan
Sitka
Yakutat
Kodiak
Nome
Barrow
Honolulu
Hilo
Kahului
Lihue
Kona
Kaneohe
Wahiawa
Pearl Harbor
Waikiki
Diamond Head
Makapuu Point
Koko Head
Koko Crater
Hanauma Bay
Waimanalo
Kailua
Kaneohe Bay
Mokapu Point
Chinaman's Hat
Mokuleia
Waialua
Haleiwa
Waimea
Kekaha
Polihale
Barking Sands
Kauai
Niihau
Oahu
Molokai
Lanai
Maui
Kahoolawe
Hawaii
Kilauea
Mauna Loa
Mauna Kea
Hilo
Kona
Kahului
Lihue
Honolulu

Chart VII. Total Snowfall, Inches, April 1950.

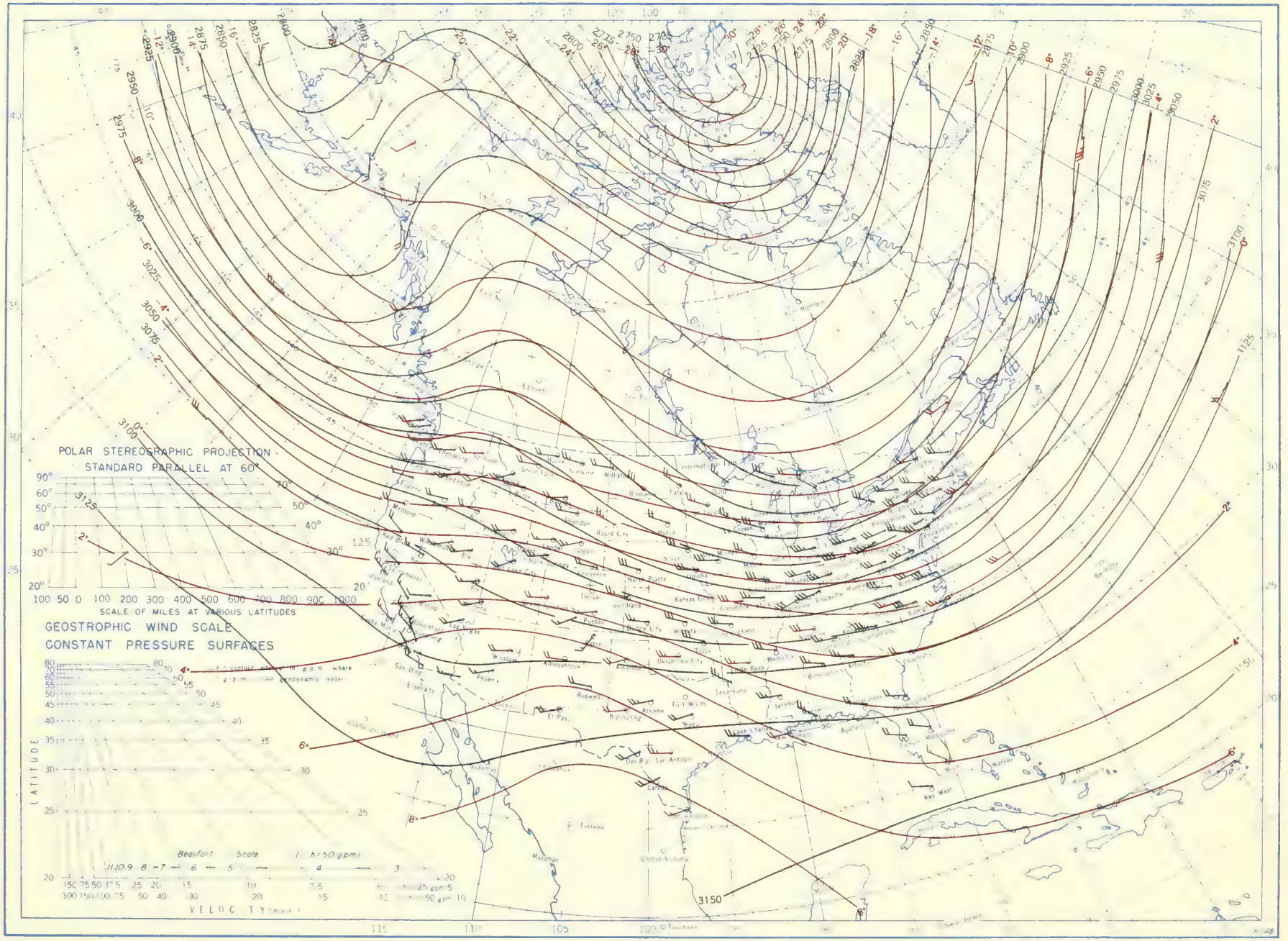


Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m. s. l.)



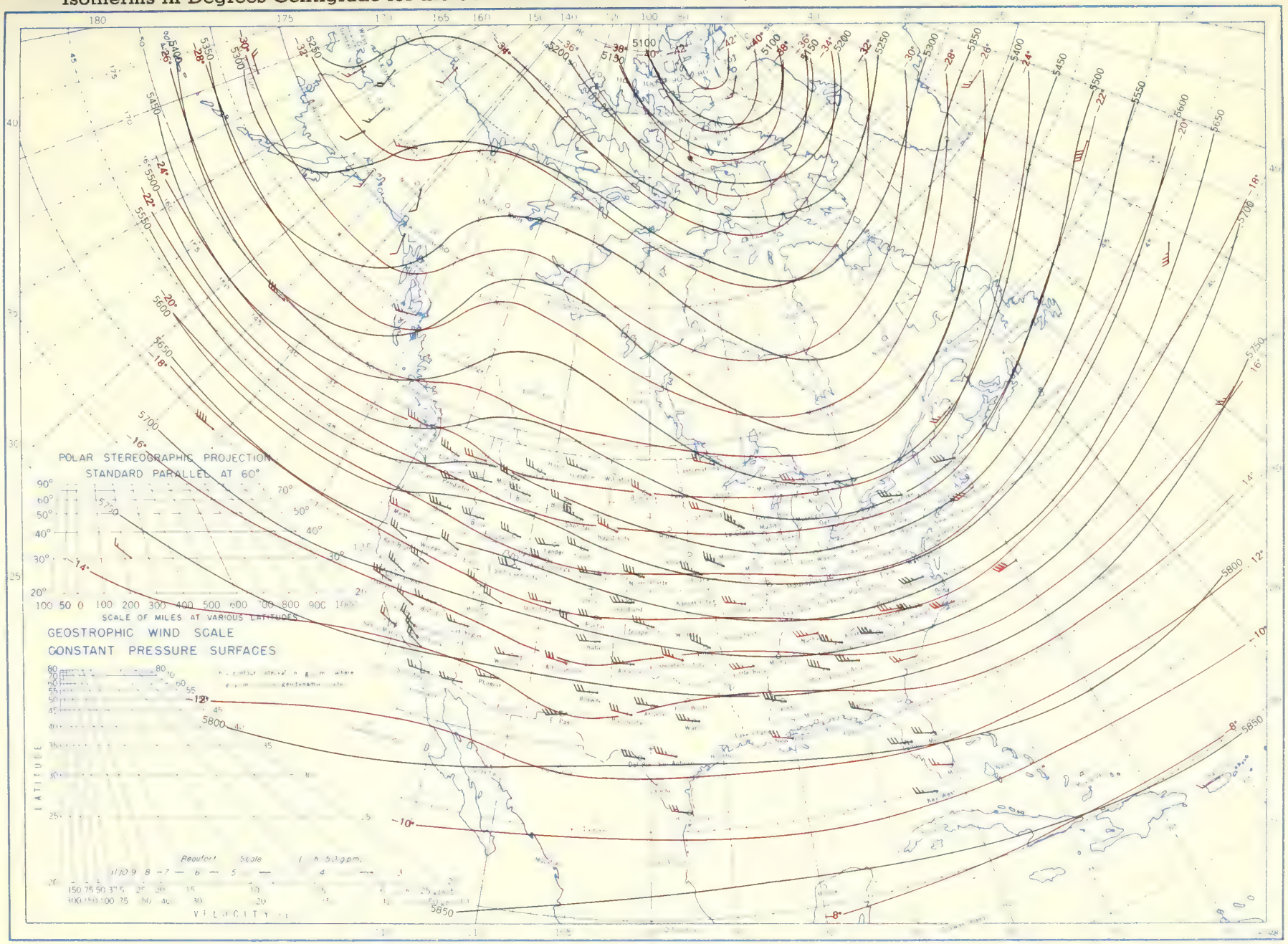
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart IX, April 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)



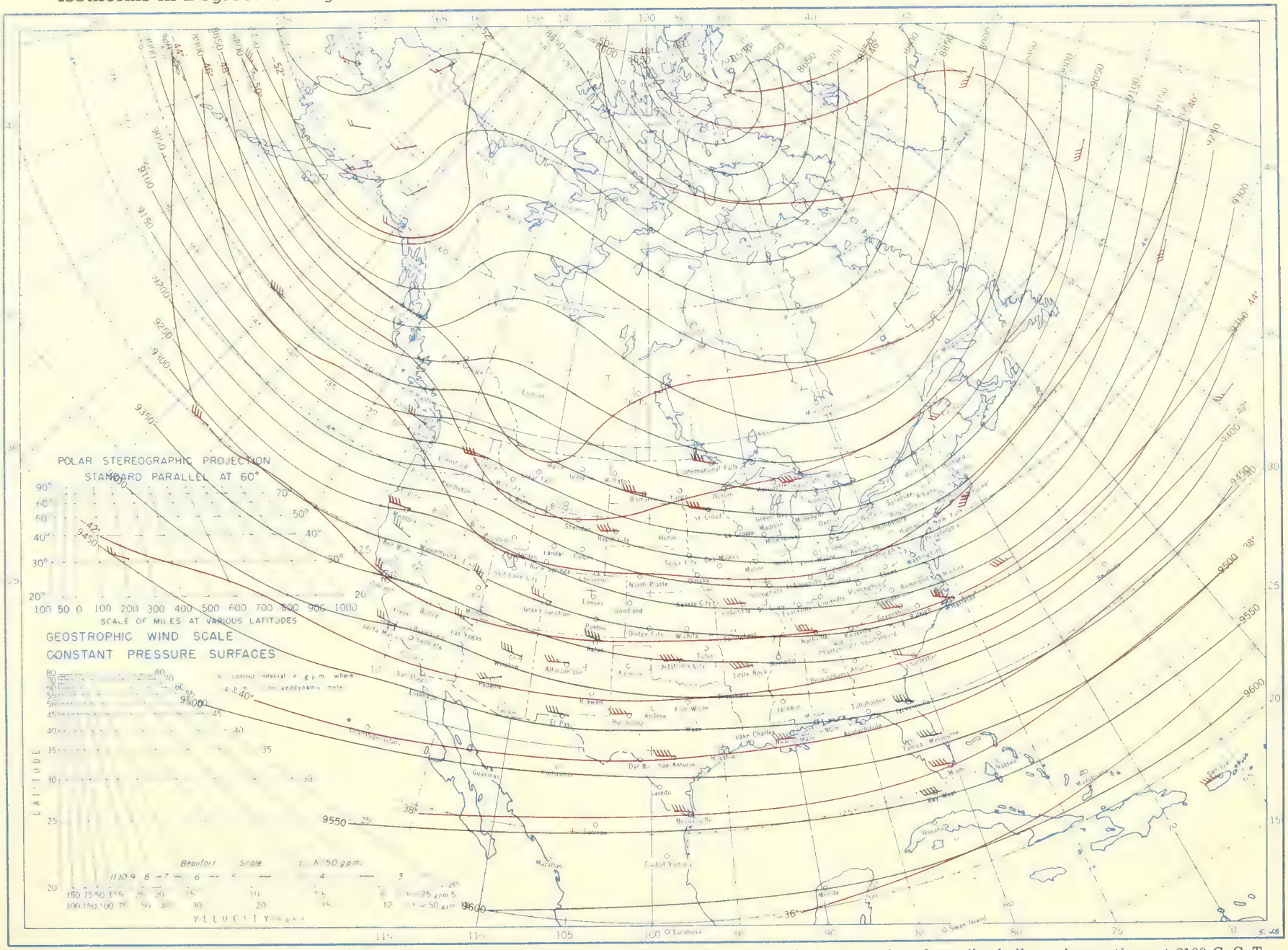
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.;

Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, April 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

AGRICULTURE DEPARTMENT
CLIMATOLOGICAL DATA LIBRARY

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

MAY 1950
Volume I No. 5

WASHINGTON: 1950

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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

able 33. MAY 1950

	Honolulu, T.H.	Pearl Harbor, T.H.	Brownsville, Tex.	Gainesville, Fla.	Apalachicola, Fla.	Lake Charles, La.	El Paso, Tex.	Ft. Worth, Tex.	La Jolla, Calif.	Charleston, S.C.	Griffin, Ga.	Phoenix, Ariz.	Riverside, Calif.	Albuquerque, N.Mex.	Hatteras, N.C.	Oklahoma City, Okla.	Raleigh, N.C.	Oak Ridge, Tenn.	Las Vegas, Nev.	Nashville, Tenn.	Stillwater, Okla.	Fresno, Calif.	Davis, Calif.	Washington, D.C.	Columbia, Mo.	Soda Springs, Calif	Seabrook, N.J.
1950																											
pril 30-----	523	473	373	317	619	(509)	717	389		615	500	724	217	734	705	402	337	341	749	121	434	729	649	63	217	749	116
ay 1-----	592	559	527	653	669	(425)	697	126		537	430	725	422	708	(310)	359	309	425	620	201	161	301	293	486	344	149	383
ay 2-----	393	443	484	599	604	269	732	614		513	449	732	480	763	588	544	336	223	709	141	400	468	284	116	610	205	160
ay 3-----	426	454	657	628	555	642	733	579		277	576	684	388	706	183	638	362	435	713	456	550	610		127	575	594	191
ay 4-----	671	676	682	707	604	533	(716)	477		560	579	703	660	623	341	245	544	475	756	394	328	712	623	407	454	770	403
ay 5-----	692	685	619	592	672	524	798	538		639	589	761	665	792	(599)	----	633	565	729	514	557	751	657	451	521	603	418
ay 6-----	649	544	670	665	713	619	788	146		632	693	768	643	779	694	655	677	464	730	89	575	764	702	386	706	372	428
verages-----	564	545	573	594	634	503	740	410		539	545	728	497	730	489	474	457	419	715	274	429	619	596	291	489	492	300
epartures---	-11	+6	---	-5	---	+11	---	-25		---	---	---	-55	---	---	---	---	-4	-2	-167	---	-13	-31	-171	+23	-120	---
ay 7-----	688	739	709	619	705	674	(773)	423		(463)	630	776	661	787	(384)	181	544	181	727	215	12	784	657	486	522	643	517
ay 8-----	667	605	674	436	657	735	703	730		(599)	651	781	679	790	778	305	772	659	708	565	219	771	602	739	352	592	752
ay 9-----	718	640	685	507	659	658	587	396		688	344	752	670	770	752	197	723	280	778	331	189	751	645	565	396	812	659
ay 10-----	686	680	454	615	734	654	535	461		717	589	775	663	696	692	---	516	363	782	467	49	754	584	371	273	810	503
ay 11-----	742	624	515	759	644	522	742	178		702	672	760	630	646	643	218	538	430	637	302	299	589	606	365	306	656	538
ay 12-----	693	736	527	705	703	400	579	467		687	480	732	577	723	622	672	494	107	729	187	644	765	635	90	723	678	143
ay 13-----	697	521	687	657	654	191	797	649		405	586	765	411	691	247	616	264	---	742	337	539	757	569	583	583	683	669
verages-----	699	649	607	614	680	548	673	429		609	565	763	613	729	588	365	550	336	729	343	279	739	614	457	451	696	540
epartures---	+58	+41	---	+15	+47	+9	---	-42		---	---	---	+62	---	---	-101	---	-83	0	-130	---	+85	-41	-20	-19	+27	---
ay 14-----	591	594	599	492	299	478	801	739		321	564	751	272	712	177	---	82	---	723	271	512	760	582	427	420	(718)	565
ay 15-----	579	543	597	322	234	(650)	797	732		404	643	745	442	645	615	750	391	426	743	415	708	756	574	192	710	814	85
ay 16-----	342	382	645	594	668	678	801	383		695	727	760	136	767	117	690	392	603	689	520	688	748	640	421	626	813	328
ay 17-----	727	713	438	543	348	692	584	709		674	518	781	105	606	681	699	665	615	740	602	608	763	576	591	730	812	658
ay 18-----	702	476	578	655	731	577	806	639		576	663	770	516	785	692	606	474	554	758	605	517	756	658	188	530	795	189
ay 19-----	610	680	696	684	737	653	741	692		645	441	763	540	752	606	593	694	610	765	271	504	765	654	201	355	822	164
ay 20-----	669	721	386	717	735	158	695	417		176	649	760	516	779	(345)	624	266	702	773	392	433	752	643	299	640	771	249
verages-----	603	587	563	572	536	555	746	616		499	687	762	361	721	462	660	423	585	742	439	567	757	618	331	573	792	320
epartures---	-26	-21	---	-12	-72	-11	---	+43		---	---	---	-148	---	---	+91	---	+87	-6	-33	---	+109	+3	-134	+67	+28	---
ay 21-----	603	533	682	550	636	697	654	686		681	138	758	559	696	789	775	749	408	785	687	738	754	645	737	560	805	702
ay 22-----	601	452	697	461	600	605	769	745		174	250	752	506	722	694	738	467	144	712	662	642	730	626	658	758	804	684
ay 23-----	624	660	722	600	621	697	652	746		575	604	764	159	664	350	739	626	604	787	706	692	662	638	505	744	770	318
ay 24-----	588	722	703	606	736	624	594	732		585	752	773	471	638	740	625	577	627	765	720	579	659	625	503	722	688	476
ay 25-----	670	755	738	662	761	655	785	490		704	638	761	625	756	674	411	507	639	783	713	395	726	615	192	463	801	444
ay 26-----	557	532	736	651	709	492	740	258		710	671	763	574	759	---	188	441	538	811	387	280	677	639	390	165	818	330
ay 27-----	626	613	600	509	703	467	762	765		646	698	784	624	780	---	667	687	442	796	464	368	736	533	598	158	739	647
verages-----	610	610	697	577	681	605	708	632		582	536	765	503	717	649	592	579	486	777	620	528	706	617	512	510	775	514
epartures---	-2	+10	---	+3	+55	+52	---	+22		---	---	---	-40	---	---	-15	---	-9	+21	+92	---	+38	-24	+14	-31	-8	---
ay 28-----	604	712	491	571	736	528	791	587		583	577	773	538	770	---	402	537	490	725	422	525	733	670	167	299	775	308
ay 29-----	567	580	686	670	761	672	798	632		386	520	773	578	796	---	613	514	636	770	651	484	766	638	159	293	822	122
ay 30-----	695	564	746	533	591	231	719	760		614	504	718	512	796	---	700	644	437	786	243	735	760	649	425	300	770	511
ay 31-----	692	605	680	380	610	615	456	656		433	674	(655)	542	754	---	746	364	250	763	439	656	776	617	236	548	685	393
une 1-----	637	694	326	679	699	455	791	303		730	702	688	556	563	701	---	712	677	669	718	473	766	636	466	562	808	268
une 2-----	615	587	147	606	575	222	743	312		634	509	763	497	646	731	329	592	306	751	204	394	766	619	722	391	809	688
une 3-----	565	391	553	544	274	400	670	670		507	397	771	557	482	671	721	362	171	642	136	721	766	707	247	624	856	294
verages-----	625	591	518	569	607	446	710	560		555	552	735	540	687	---	585	532	424	729	402	570	762	648	346	431	789	369
epartures---	-21	-24	---	+13	-34	-69	-12	-29		---	---	---	+9	---	---	+17	---	-52	0	-99	---	+85	+56	-167	-54	+13	---
Accumulated Departures January 1 to June 3, 1950																											
	-210	+161	---	---	---	---	---	---		---	---	---	-3227	---	---	---	---	---	---	-798	---	+8057	-266	-4508	-140	-364	---

ote.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

Table 33—Continued

MAY 195(

	Grand Lake, Colo.	Salt Lake City, Utah	New York, N.Y.	State College, Pa.	Lincoln, Nebr.	Newport, R.I.	Put-in-Bay, Ohio	E. Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Amherst, Mass.	Lynn, Mass.	Ithaca, N.Y.	Twin Falls, Idaho	Albany, N.Y.	E. Lansing, Mich.	Madison, Wis.	Portland, Me.	Toronto, Ont.	Ottawa, Ont.	Caribou, Me.	Summit, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska	Aklavik, MacKenzie
1950																										
April 30-----	618	---	86	42	532	282	52	399	616	580	---	616	191	684	520	130	98	708	368	652	594	633	354	618	536	60
May 1-----	610	---	90	296	542	68	419	74	72	60	---	84	90	176	230	372	662	90	208	83	525	363	347	629	---	47
May 2-----	622	---	127	529	138	454	610	438	565	475	---	430	591	459	543	606	577	572	601	684	398	366	215	570	221	38
May 3-----	658	---	341	187	154	583	596	541	641	597	---	595	527	496	620	524	446	611	608	441	606	243	382	626	135	(24
May 4-----	389	---	439	483	454	527	401	534	600	469	---	485	461	571	380	315	428	310	200	110	691	479	96	638	208	37
May 5-----	611	---	72	587	320	161	389	166	138	125	---	135	401	386	106	299	288	583	406	614	741	267	54	250	328	50
May 6-----	740	---	298	294	744	159	706	137	316	348	---	311	230	660	337	525	718	242	582	575	284	412	498	366	453	53
Averages-----	607	---	208	346	412	319	453	327	421	379	---	379	356	490	391	396	460	445	425	451	548	395	278	528	313	44
Departures---	+52	---	-213	-74	-34	-138	+3	-103	-36	-7	---	---	-54	-48	-24	+37	+16	-25	+5	---	---	-55	---	---	-119	---
May 7-----	476	---	531	654	606	572	667	525	666	612	672	---	434	314	676	582	447	629	539	628	475	499	729	397	376	57
May 8-----	655	---	721	763	113	766	712	712	784	721	752	699	724	427	755	570	331	744	660	723	553	497	253	510	516	53
May 9-----	539	---	581	436	740	740	136	673	755	679	703	635	491	690	652	140	383	720	186	528	758	751	93	687	213	56
May 10-----	734	---	182	224	674	90	517	76	143	143	160	172	312	662	189	519	688	139	439	388	267	563	658	(605)	624	62
May 11-----	766	---	657	455	720	695	232	617	603	538	547	552	439	699	460	391	684	582	428	703	610	606	611	(465)	488	40
May 12-----	514	---	442	385	537	562	645	594	637	535	601	756	567	699	579	538	653	608	611	344	487	724	413	581	405	62
May 13-----	658	---	613	544	669	712	465	640	710	652	622	619	251	694	488	497	673	671	323	317	277	634	701	459	419	66
Averages-----	620	---	533	494	580	591	482	548	614	554	579	572	460	598	543	463	551	585	455	519	490	611	494	529	434	57
Departures---	+4	---	+86	+41	+126	+108	+38	+79	+138	+127	---	---	+20	+48	+78	+72	+94	+67	+26	---	---	+103	---	---	-18	---
May 14-----	648	---	677	491	651	788	626	701	776	710	743	690	711	639	752	365	647	759	670	723	813	491	514	399	539	70
May 15-----	419	---	163	165	696	402	---	431	362	349	254	372	156	699	332	577	743	550	326	322	742	513	421	461	677	34
May 16-----	608	---	485	531	677	173	714	114	168	147	401	137	567	710	375	582	283	339	655	270	541	683	298	581	657	46
May 17-----	638	---	540	284	544	668	600	599	728	647	580	672	157	664	256	388	675	682	513	610	705	377	490	328	689	70
May 18-----	359	---	101	154	345	203	696	227	230	175	---	373	90	741	210	487	727	173	234	276	731	334	544	479	515	57
May 19-----	796	---	49	135	686	81	700	69	70	69	73	113	86	673	145	630	574	207	122	283	422	285	170	510	659	37
May 20-----	843	---	315	430	258	449	780	331	569	566	---	605	544	720	615	636	704	478	642	605	767	222	647	615	605	21
Averages-----	616	---	333	313	551	395	686	353	415	381	411	423	330	692	384	524	622	456	452	441	674	415	441	482	620	48
Departures---	+15	---	-111	-88	+44	-80	+240	-74	-57	+7	---	---	-84	+97	-80	+160	+151	-93	+17	---	---	-96	---	---	+147	---
May 21-----	774	---	---	750	760	648	720	575	726	679	---	626	750	704	726	615	446	737	671	736	561	451	638	480	480	34
May 22-----	748	---	728	716	737	794	475	724	806	687	739	692	696	612	779	314	442	759	582	689	787	617	615	434	525	29
May 23-----	709	---	163	375	727	601	647	586	629	561	455	551	423	709	556	517	496	602	341	510	687	507	413	450	535	65
May 24-----	403	---	168	529	501	236	569	310	423	379	113	460	468	741	226	338	563	664	616	595	735	538	540	684	325	57
May 25-----	140	---	279	532	126	263	592	381	383	334	113	435	674	740	254	489	172	726	644	630	700	771	777	501	---	45
May 26-----	618	655	204	542	205	431	638	437	610	632	579	634	674	730	564	129	630	655	537	665	661	679	755	662	---	65
May 27-----	469	696	716	593	88	784	242	721	794	721	722	727	646	648	694	530	715	743	342	590	778	650	704	482	650	60
Averages-----	551	---	376	577	449	537	555	533	624	570	479	589	619	697	543	419	495	698	505	631	701	602	635	528	503	51
Departures---	-34	---	-79	+95	-89	+82	+43	+57	+160	+139	---	---	+140	+92	+90	+29	-2	+142	+68	---	---	+70	---	---	+57	---
May 28-----	315	590	284	284	252	506	660	526	544	454	519	460	146	690	261	657	552	591	241	---	696	555	---	---	600	---
May 29-----	679	627	73	429	411	191	715	352	236	252	151	278	134	687	116	618	698	392	462	---	701	143	---	---	230	---
May 30-----	754	566	522	520	719	272	612	96	162	115	425	127	510	701	502	455	388	191	597	---	496	722	---	---	654	---
May 31-----	790	597	106	131	745	340	209	338	535	458	403	416	256	753	481	389	767	317	228	---	361	734	---	---	223	---
June 1-----	835	541	137	662	612	261	695	278	122	136	87	147	384	717	138	636	771	145	555	---	239	153	---	---	482	---
June 2-----	616	246	646	626	228	727	452	681	757	722	723	634	620	529	748	112	190	644	287	---	440	502	---	---	739	---
June 3-----	349	534	280	179	713	581	139	513	537	520	344	458	127	754	150	389	718	335	194	---	89	759	---	---	601	---
Averages-----	620	529	293	405	526	411	497	398	413	380	397	360	311	690	342	465	583	373	366	---	431	510	---	---	504	---
Departures---	+70	+41	-191	-84	+5	-105	-61	-84	-103	-65	---	---	-180	+118	-130	+31	+82	-142	-115	---	---	-74	---	---	+5	---

Accumulated Departures January 1 to June 3, 1950

	+189	---	-3962	-2660	+637	-4172	+602	-4459	-329	+770	---	---	---	+2534	---	-1113	+637	---	-140	---	---	-581	---	---	+4410	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

Four new stations are being added to Table 33 beginning with this issue and will appear regularly in that table hereafter. A listing of these stations, together with a brief description of each follows:

1. El Paso, Texas: Latitude 31° 48' N.; longitude 106° 24' W.; elevation 1205 meters; Brown strip-chart recorder; good exposure; slight pollution caused by dust storms, occurring mostly in the spring, and by industrial smoke, which rarely reaches the airport area; equipment located at Weather Bureau Airport Station.

2. Phoenix, Arizona: Latitude 33° 26' N.; longitude 112° 02' W.; elevation 345 meters; Brown strip-chart recorder; excellent exposure; year round pollution, due to burning at dumps in valley; seasonal pollution, due to burning straw, etc., off fields; desert dust during periods of strong wind; equipment located at Weather Bureau Airport Station.

3. Las Vegas, Nevada: Latitude 36° 05' N.; longitude 115° 10' W.; elevation 666 meters; Brown integrating potentiometer; good exposure (mounted on post above roof); occasional blowing dust and haze; equipment located at Weather Bureau Office at the airport in Las Vegas.

4. Stillwater, Oklahoma: Latitude 36° 08' N.; longitude 97° 04' W.; elevation 274 meters; Leeds & Northrup Micromax; excellent exposure; some pollution caused by dust; the solar program is sponsored by the Oklahoma Agricultural Experiment Station and is under the supervision of Dr. Ruth Reder of Chemistry Research Division.

DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA
NATIONAL SUMMARY

Volume I No. 5

MAY 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

The weighted average May temperature for the United tates was 61.6°, only 0.4° above the 58-year mean. Monthly departures were minus at most stations in the northrn Great Plains, a narrow belt along the Atlantic Coast, nd in the far West except the extreme south; elsewhere, epartures were generally slightly above normal. Deparures ranged from 4° or more below normal in the northern lains to 6° or more above in the southeastern interior.

The most significant cool period of the month occurred in he far West and northern Plains during the first decade. In he northern Plains and northern Rockies minus departures or the period were as much as 20° and some daily deparures were 30° or more. There was a second cool period f a few days in the northern Rockies and central Great lains near the close of the month. The lowest temperature or the month was 2° recorded at Tower Falls, Wyo. on the st, and the highest 119° recorded at Cow Creek, Calif. n the 31st.

The weighted average precipitation for the United States as 2.86 inches, exactly the same as the 58-year mean. recipitation was fairly well distributed through the month, ut the areal distribution was very irregular with extreme eficiencies in portions of the Northeast, Lake Region, lorida, and the far West, and large excesses in Oklahoma, ortions of the lower Mississippi Valley, eastern Nebraska, astern North Dakota, and northern Minnesota.

Due to the unusually cold weather in northern areas west of he Great Lakes during the first decade, a much greater an normal proportion of the total precipitation was in the rm of snow, and many stations in the area recorded new ay records for monthly totals, depths on the ground, and nounts for a single storm. In North Dakota the average owfall for the month was 8.8 inches, or more than 17 mes the usual average for May and more than twice the revious record of 4.0 inches established in 1905.

Cold, stormy weather which characterized the closing ys of April continued during the first decade of May, incipally in the northwestern quarter of the country. n the first day a cold air mass centered over the Great lains brought the lowest temperatures of the month to most ations in the northern Rockies and North Central States. n the same date a Pacific Low moved in over the West and neral precipitation fell for 2 days in the Pacific States. s this Low continued eastward it was followed by unusually w temperatures. In California, Sacramento recorded its west May temperature of 37.1° on the 3d, and frost or eeze caused slight damage to grape vines, lettuce, matoes, and strawberries in the Sacramento Valley and ntral coastal areas. The fruit crop in northern and estern Nevada was damaged severely.

The arrival of cold northern air in Arizona on the 4th was accompanied by the only measurable precipitation that this State received during the month. On the morning of the 5th temperatures fell below freezing over most of Arizona, and heavy frosts in valleys above 3,000 feet caused severe crop damage. Crop damage in Santa Cruz Valley was estimated as high as 50 percent; it was the worst freeze in 20 years in Graham County; pecans, melons, string beans, and potatoes were badly damaged in Duncan Valley; mesquite beans, and new sprouts on mountain oak were frozen; and fruit trees in mountain valleys were badly damaged. About 10 percent of the cotton crop had to be replanted. Five degrees at Maverick on the 5th equaled the lowest May temperature ever recorded in the State.

On the 4th a deepening Low over the lower Rocky Mountain Region moved into the central Great Plains where it gained great storm intensity and during the 5th and 6th moved northeastward across the Lake Region. Near-record low pressure was measured at a number of stations near the center of the storm. In the northern sector of the storm light to heavy snowfall, which had become general over the northern Rocky Mountain Region on the 4th, moved across the northern Plains on the 5th and 6th. Snowfall ranged from 2 to 6 inches in northwestern Kansas, 2 to 10 inches over Nebraska, and up to 10 inches in Wyoming and 17 inches in South Dakota. Near Helena, Mont. at elevations between 5,000 and 6,000 feet, 30 to 40 inches of snow fell in 2 days.

Wind speeds in this storm ranged from 50 to 70 m.p.h., with gusts up to 90 m.p.h. This was described as Wisconsin's most severe storm in history considering the area, length of time, and high velocities, and one of the worst in Iowa's history. Preliminary estimates of damage by states were: Iowa, $5,000,000; Wisconsin, several million; Minnesota, $750,000; Illinois, $400,000; Michigan, $200,000; and Nebraska, several thousand.

Southerly winds in advance of the storm brought to the Lake Region 80° temperatures which were followed by thunderstorms accompanied by hail in some areas.

On the 8th and 9th a Hudson Bay High moved across the Northeast bringing the lowest temperatures of the month to that region, and setting new low temperature records for those dates at many stations and new low records for May at a few. At the same time, thunderstorm activity over the central Great Plains with total rainfall of 6 to 14 inches in east-central Nebraska caused flash floods that resulted in 23 deaths and damage estimated in the millions.

Temperatures averaged about normal or a few degrees above in most areas during the remainder of the month, except for a few days of unusually cool weather in the

extreme Northwest, northern and central Rockies, central Great Plains and upper Appalachian Region during the last week. Although minima fell below freezing in the Northwest and Rockies, establishing late-season records at a number of stations, very little crop damage resulted due to the lateness of the season.

The Red River of the North was above flood stage above Fargo, N. Dak. throughout May. This was the most disastrous flood on record in that area. Extensive flooding in northeastern Minnesota caused over $2,000,000 damage. There was also flooding along the upper Mississippi in Minnesota, and along the James River in North Dakota.

Severe local storms may have been somewhat more frequent than usual, but total damage and loss of life were below the average. Only one of these storms, a combination of wind and hail in Hunt County, Texas on the 29th, caused damage as much as $1,000,000 or more. Only 2 deaths resulted from tornadoes.

From the standpoint of agriculture, May weather was far from ideal but generally more favorable than that of April. Near-normal temperatures after the first decade enabled crops in the South to make rapid growth and those in the Midwest to make considerable improvement. Except in the western portions of the lower Great Plains, moisture was generally ample for all crops east of the Rockies, although in some areas frequent rains caused delay in field work. In extreme north-central areas field work was still behind at the end of May. Small grains further deteriorated in the Southwest, and most ranges in the far West needed rain by the close of the month. It was too cool in the far Northwest for best growth.

The spring of 1950 was one of the coolest on record in the northern one-third of the country, and one of the driest on record at many stations in the Southwest and extreme southern Florida. Temperatures averaged below normal except in the Southwest, the extreme southern portions of the Appalachians and in northern New England. Extreme departures ranged from 4° above normal in southern New Mexico and Arizona to 6° or more in parts of Minnesota and Wisconsin. Damage from late frosts and freezes was mostly light, due to the late development of vegetation which resulted from continuous cold weather during March and April. Compared to normal, precipitation was excessive in eastern North Dakota and northern Minnesota, but was generally deficient in the far West and lower portion of the western Great Plains, the extreme Northeast and southern Florida. Scanty precipitation, which was less than 50 percent of normal in the Southwest and portions of the lower Great Plains, caused much deterioration of winter wheat.

CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

MAY 195

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	74.4	+3.0	Dothan CAA AP	97	26	Valley Head	50	16	4.04	+0.09	Hodges	9.45	Huntsville	1.2(
Arizona	64.1	-1.6	Davis Dam	108	31	Maverick	5	5	.10	-.23	Bright Angel R.S.	.76	77 stations	.0(
Arkansas	69.7	+.6	3 stations	95	†23	2 stations	40	6	8.08	+2.97	Beaver	15.00	El Dorado	3.7
California	62.7	-.4	Cow Creek	119	31	Gem Lake	5	4	.64	-.16	Bowman Dam	4.74	59 stations	.0(
Colorado	50.4	-2.0	Eversoll Ranch	100	23	Dillon 1S	7	26	1.16	-.74	Kassler	4.08	3 stations	.0(
Florida	77.1	+1.5	Palatka	98	†26	Stuart	50	6	3.08	-.82	Cross City CAA AP	9.32	Big Pine Key Inn	.5
Georgia	74.3	+2.2	Macon	99	28	Cartersville	41	17	4.03	+.59	Suches	8.46	Bellville	1.1
Idaho	50.0	-3.2	2 stations	90	†22	Obsidian 4NNE	8	†3	.90	-.69	Pierce R.S.	2.48	Chilly Barton Flat	.0(
Illinois	64.5	+1.8	Ottawa	96	24	2 stations	30	†1	2.57	-1.53	New Burnside	8.35	Des Plaines 1NW	.4
Indiana	63.5	+1.3	Evansville	94	†24	Howe Military School	30	7	3.07	+1.03	Leavenworth Dam	10.94	Bluffton W.W.	.9
Iowa	59.8	-.6	2 stations	94	23	New Hampton	22	1	4.89	+.93	Glenwood 6SE	9.98	Clinton #1	1.3
Kansas	63.9	+.1	Medicine Lodge	101	3	Cedar Bluff Dam	28	1	3.82	+.05	Concordia	10.53	Johnson	.0
Kentucky	66.9	+1.5	3 stations	95	†5	Mammoth Cave Pk.	32	13	6.34	+2.34	Shelbyville 2W	10.09	Grant Dam 38	2.6
Louisiana	75.7	+1.9	Lake Providence	95	27	Arcadia	48	13	6.24	+1.53	Robeline	16.52	Port Sulphur	1.3
Maryland-Delaware	62.1	-.8	Leonardtown, Md.	95	6	Oakland, Md.	26	8	4.68	+.99	Blackwater Refuge, Md.	8.57	Pokomoke City, Md.	2.2
Michigan	54.1	+.2	Adrian	91	25	Vanderbilt Trouts	15	8	1.88	-1.44	White Pine Mine	4.55	Jackson CAA	.3
Minnesota	51.6	-3.5	Canby	96	23	Cass Lake F. Exp.	12	1	4.53	+1.28	Trail	8.70	Rochester	1.7
Mississippi	74.6	+2.7	Newton Exp. Sta.	97	27	Water Valley	47	1	4.70	+.38	Natchez	12.01	Bay St. Louis	.7
Missouri	65.8	+1.4	Arcadia	93	26	Elsberry	28	1	5.53	+.73	Alton 6NE	15.40	Coloma	1.6
Montana	48.6	-3.8	4 stations	89	†22	2 stations	5	†1	1.10	-1.03	Polaris	4.28	Ovando 7WNW	.0
Nebraska	56.9	-2.4	Culbertson	99	23	Harrison	20	1	4.24	+.84	Firth	13.94	Minitaire	1.1
Nevada	55.3	-1.7	Overton	107	31	Lehman Caves	6	4	.46	-.32	Lamoille P.H.	2.42	17 stations	.0
New England	54.7	-.4	Fort Kent 1SE, NE	91	26	Tuckerman Ravine, N.H.	10	8	2.28	-1.20	Lake Konomoc, Conn.	7.42	Jackson, Me. 1NNW	.3
New Jersey	58.6	-2.0	Belleplain	91	6	Layton 3NW	23	9	3.68	-.14	Marlton 1W	6.45	Jersey City	2.4
New Mexico	60.4	-.2	Hagerman	99	29	Gavilan	6	9	.27	-.98	Cameron	2.50	56 stations	.0
New York	55.9	-.2	Dansville	95	6	Saranac Lake	18	9	2.52	-1.03	Orient	6.20	Arcade	.3
North Carolina	68.5	+1.6	Lake Michie	98	5	Maysville	30	9	5.42	+1.38	Elkin	14.84	Pope Field	1.8
North Dakota	49.4	-4.0	Forman	95	23	Elbowoods	14	1	3.44	+1.16	Medina 1W	7.67	Reeder 14N	.8
Ohio	62.0	+1.4	Ironton	96	5	Willoughby AP	24	8	2.72	-1.04	Higginsport	7.28	Lyons High School	.4
Oklahoma	69.1	+.8	Alva	105	4	Buffalo	30	1	7.24	+2.39	Purcell	19.50	Kenton	.4
Oregon	51.9	-2.1	Ilaahe 1N	98	31	Unity	11	18	.92	-.83	Willamette Snow Lab.	4.12	2 stations	T
Pennsylvania	58.8	-.8	Lock Haven 1	92	6	Donegal	21	8	3.99	-.04	Arendtsville	7.60	Washington	.9
South Carolina	72.4	+1.5	Conway	97	†6	Dillon 4SW	40	9	4.26	+.74	Walterboro	9.69	Bisopville	1.8
South Dakota	52.5	-3.9	Tyndall	99	23	Hardy R.S.	4	1	3.18	+.33	Columbia 8N	6.70	Edgemont	1.1
Tennessee	69.7	+2.8	2 stations	93	†26	Kingsport 3SE	45	19	5.87	+1.73	La Follette	14.51	Smyrna 5NE	2.1
Texas	73.5	+.5	Laredo	105	†4	Follett	30	1	3.63	-.07	Maud	13.16	2 stations	.0
Utah	53.0	-2.8	Zion N.P.	102	31	3 stations	10	†4	1.05	-.04	High Line City Creek	3.74	3 stations	.0
Virginia	64.2	0	Walkerton	98	6	Big Meadows	29	8	5.79	+1.98	Swords Creek	10.58	Chincoteague	1.8
Washington	52.5	-2.8	Richland 2NW	94	27	Bumping Lake	13	7	1.07	-.83	Mt. Baker Lodge	6.70	White Swan	T
West Virginia	62.9	+1.1	5 stations	95	†5	Pickens No. 1	20	8	4.77	+.76	Ireland	7.55	Wellsburg 3NE	1.8
Wisconsin	54.3	-.9	Kenosha	94	24	3 stations	18	†2	3.00	-.51	Superior Bong AP	6.96	Appleton W.P.	1.0
Wyoming	45.3	-4.5	2 stations	89	23	Tower Falls	2	1	1.84	-.13	Middle Fork	4.63	Powell	.1
Puerto Rico	75.2	-1.1	San German	96	†30	Juncos	50	17	4.84	-2.76	Rio Blanco (1800 ft.)	15.97	Calero Camp	.4

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F or above	Temperature: No. of days: Min. 32° F or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In.	In.	In.			In.	In.	M p. h.		M p. h.			0–	4–	8–	0–10	%
ALABAMA																																
Anniston	599	993.6	1015.5	84	62	72.9	----	92	25	55	5	5	0	63	--	3.59	-----	1.59	9	--	0	0	5.6	E	--	---	--	--	--	--	----	--
Birmingham	610	992.9	1015.1	84	63	73.6	+4.3	92	27	55	16	3	0	62	73	4.55	+.60	2.09	9	9	0	0	6.5	SSW	47	W	2	4	11	16	6.9	69
Mobile	10	1007.8	1015.6	85	69	77.3	+2.9	92	26	60	16	6	0	67	79	3.05	-1.27	1.75	7	6	0	0	8.8	S	47	SW	15	8	14	9	5.6	62
Montgomery	201	1007.8	1014.9	86	67	76.2	+2.8	93	27	60	16	6	0	64	73	3.72	-.12	1.17	11	6	T	T	5.6	SSW	26	W	1	7	13	11	6.1	72
ARIZONA																																
Flagstaff	6993	785.6	1014.1	67	31	48.6	----	82	31	18	5	0	18	20	37	.35	-----	.35	1	1	3.1	3	8.5	S	--	---	--	14	12	5	3.8	--
Grayson	4999	846.3	1011.6	79	43	61.0	----	91	30	25	5	2	2	23	25	.08	-----	.08	1	2	T	0	5.7	SW	--	---	--	21	7	3	2.5	--
Phoenix	1083	970.2	1008.7	91	61	75.9	+.9	101	21	47	5	21	0	32	23	T	-.12	T	0	0	0	0	5.0	W	26	W	4	24	6	1	1.9	98
Prescott	5014	844.9	1010.9	77	43	60.2	----	92	31	29	5	2	4	24	20	.16	-----	.16	1	2	T	0	11.0	SW	45	W	25	23	6	2	2.4	96
Tucson	2585	922.5	1009.3	88	55	71.6	-1.6	96	21	38	5	14	0	24	18	.01	-.17	.01	1	0	0	0	6.8	SE	29	W	4	21	4	6	2.9	94
Winslow	4880	849.0	1008.7	78	44	61.3	-.8	91	31	30	5	2	1	18	21	.06	-.24	.06	1	2	T	0	10.9	SW	--	---	--	17	13	1	2.7	--
Yuma	203	1004.1	1009.1	94	62	78.1	----	105	27	50	5	25	0	35	25	0	-----	0	0	0	0	0	7.3	SSE	32	NW	2	28	2	1	1.0	99
ARKANSAS																																
Fort Smith	458	996.3	1012.5	81	60	70.4	+.8	90	24	50	6	1	0	60	75	6.45	+1.63	3.59	10	9	0	0	6.5	NE	34	SW	5	4	9	18	7.4	59
Little Rock	257	1000.3	1013.3	80	62	71.2	+.9	91	23	53	2	3	0	66	77	8.37	+3.59	2.70	11	9	T	T	6.9	S	29	S	5	3	10	18	7.5	49
Texarkana	361	1000.0	1012.8	82	64	72.9	+1.3	89	24	56	6	0	0	63	76	11.42	+6.78	3.51	12	15	T	T	8.0	SSE	--	---	--	3	9	19	7.5	--
CALIFORNIA																																
Bakersfield	489	994.9	1012.9	86	56	71.3	+1.1	106	30	40	4	13	0	40	35	.02	-.34	.02	1	0	0	0	7.6	WNW	--	---	--	20	7	4	2.6	--
Beaumont	2589	923.8	1013.8	75	44	59.4	----	93	26	31	8	5	1	41	60	.26	-----	.15	5	1	0	0	6.8	W	--	---	--	16	11	4	3.5	--
Bishop	4108	871.3	1010.8	83	44	63.2	----	99	31	30	8	10	3	--	--	T	-----	T	0	0	0	0	---	---	--	---	--	12	15	4	4.3	--
Blue Canyon	5280	838.5	1013.1	64	45	54.4	----	86	31	21	3	0	6	32	50	4.08	-----	2.51	4	3	24.8	16	9.0	ENE	--	---	--	16	8	7	3.6	--
Burbank	699	988.2	1014.1	71	52	61.3	----	86	10	43	7	0	0	47	65	.03	-----	.02	2	0	T	0	6.6	S	--	---	--	8	15	8	5.3	--
Eureka	43	1017.3	1019.6	54	45	49.7	-2.3	59	31	38	7	0	0	--	--	1.30	-.50	.87	6	0	T	T	8.5	---	32	N	6	9	12	10	5.7	65
Fresno	331	1001.0	1012.6	85	52	68.4	+1.2	102	30	38	7	11	0	46	48	.05	-.39	.05	2	0	0	0	7.6	NW	26	NW	6	22	5	4	2.8	95
Los Angeles	312	1011.2	1014.8	70	54	62.2	0	88	10	49	8	0	0	50	74	T	-.45	T	0	0	0	0	5.8	WSW	32	W	4	8	13	10	5.4	56
Mt. Shasta	3543	892.3	1015.7	70	41	55.2	+1.8	86	30	28	5	0	7	36	51	.46	-1.36	.32	3	0	T	0	9.3	NW	--	---	--	17	7	7	4.2	--
Oakland	3	1015.6	1015.9	67	48	57.3	-.4	89	29	39	4	0	0	47	73	.71	-.06	.34	3	0	0	0	8.0	W	--	---	--	12	14	5	4.2	--
Red Bluff	341	1000.3	1012.9	86	56	71.0	+4.7	108	30	36	3	15	0	39	37	.60	-.53	.50	2	2	T	T	8.7	NNW	31	SE	1	20	5	6	3.3	91
Sacramento	25	1010.8	1013.3	81	51	65.8	+2.5	101	30	37	3	7	0	45	56	.37	-.40	.26	2	0	0	0	11.1	SW	30	S	1	25	3	3	2.1	91
Sandberg	4517	861.5	1012.7	68	47	57.9	----	89	30	28	4	0	3	33	45	.02	-----	.02	1	1	T	T	17.1	NNW	--	---	--	19	8	4	2.9	--
San Diego	19	1011.9	1015.1	67	55	61.2	-.1	73	10	48	5	0	0	50	71	.09	-.26	.08	2	0	0	0	7.3	WNW	20	W	4	9	9	13	6.0	51
San Francisco	1	1014.9	1015.6	61	49	54.7	-2.1	87	29	44	3	0	0	47	77	.37	-.43	.21	2	0	0	0	14.9	WNW	33	W	17	13	10	8	4.3	76
Santa Catalina	1568	957.7	1014.2	61	49	55.2	----	79	10	43	4	0	0	--	--	.25	-----	.18	4	0	0	0	---	---	--	---	--	11	7	13	5.8	--
Santa Maria	231	1007.5	1016.0	65	46	55.8	----	85	10	34	7	0	0	47	77	.15	-----	.13	2	0	0	0	7.6	W	--	---	--	12	8	11	5.1	--
COLORADO																																
Alamosa	7534	769.7	1013.3	68	29	48.4	----	81	30	13	9	0	21	--	--	.04	-----	.03	2	3	0	0	---	---	--	---	--	10	14	7	4.7	--
Colorado Springs	6175	808.7	1012.3	67	38	52.4	----	83	30	26	1	0	7	29	46	1.00	-----	.60	7	6	1.1	1	13.2	N	--	---	--	12	13	6	5.0	--
Denver	5221	834.1	1011.5	66	40	53.0	-2.2	83	23	28	5	0	6	32	54	2.80	+.30	1.38	10	2	13.7	7	8.3	S	43	NW	5	7	14	10	6.1	59
Grand Junction	4849	855.7	1009.9	73	46	59.1	-2.0	86	30	33	5	0	0	25	31	.46	-.35	.45	2	3	T	0	11.2	NW	45	S	3	11	14	6	5.1	80
Pueblo	4799	853.0	1009.7	74	42	58.3	-.6	88	22	32	1	0	1	32	43	.44	-1.16	.16	6	4	T	T	8.5	E	47	SW	8	8	14	9	5.4	71
CONNECTICUT																																
Bridgeport	7	1016.9	1018.1	63	48	54.9	----	81	7	38	8	0	0	46	78	3.85	-----	.91	17	3	0	0	9.4	E	32	SE	21	6	6	19	7.3	--
Hartford	15	1011.5	1017.7	68	46	57.8	-.2	81	27	32	9	0	1	46	73	2.82	-.78	.64	14	2	0	0	7.4	SSE	37	NW	7	5	9	17	7.3	55
New Haven	6	1013.2	------	63	47	54.8	-.6	79	21	36	9	0	0	--	--	3.65	+.27	.71	14	2	0	0	----	---	29	NW	7	7	6	18	7.3	47
DELAWARE																																
Wilmington	73	1013.5	1016.6	70	51	60.1	----	85	6	37	9	0	0	51	77	3.32	-----	.91	15	7	0	0	7.4	ENE	--	---	--	5	6	20	7.6	--
FLORIDA																																
Apalachicola	13	1014.9	------	83	70	76.0	+1.4	94	27	63	18	2	0	--	--	2.23	-1.17	1.62	5	5	0	0	----	---	26	E	9	12	12	7	4.9	69
Daytona Beach	33	1014.9	1016.7	86	65	75.5	+1.8	91	13	57	11	7	0	67	81	2.13	-1.51	.71	6	7	0	0	9.4	E	30	NW	15	10	12	9	5.0	--
Fort Myers	15	1015.9	1016.2	91	66	78.3	+1.1	93	27	60	19	25	0	66	73	4.14	+.02	2.43	8	11	0	0	7.8	SE	--	---	--	15	11	5	4.5	--
Jacksonville	18	1015.2	1016.4	87	69	77.6	+2.6	93	26	63	23	10	0	65	70	3.60	-.42	1.63	8	6	0	0	7.2	SW	39	NE	21	5	20	6	5.5	64
Key West	5	1015.2	1015.4	88	75	81.5	+2.4	91	31	71	22	3	0	69	70	1.10	-2.44	.52	5	5	0	0	10.8	E	21	SE	31	9	21	1	4.3	78
Lakeland	215	------	------	88	68	77.8	+1.0	94	27	64	16	9	0	--	--	2.87	-1.98	.97	8	10	0	0	----	---	--	---	--	8	17	6	5.1	--
Melbourne	22	1015.6	1016.7	85	67	76.1	-.9	90	30	61	16	2	0	69	82	5.08	+1.84	1.88	7	13	0	0	9.5	SE	32	NW	15	11	15	5	4.7	--
Miami	8	1014.9	1015.9	81	73	77.0	-.2	86	27	63	18	0	0	67	72	1.38	-5.77	.61	8	9	0	0	8.1	FSE	48	SW	17	7	9	5	4.5	67
Orlando	111	1012.2	1016.6	90	67	78.0	+1.8	96	4	57	17	18	0	66	74	2.93	-1.55	1.14	9	9	T	T	8.0	SE	40	NNW	15	9	15	7	5.0	--
Pensacola	13	1013.5	1015.4	83	70	76.7	+2.8	91	27	62	20	1	0	67	--	2.76	-.61	1.42	6	6	0	0	7.5	SSE	38	N	20	7	10	14	6.2	79
Tallahassee	64	1013.9	1016.3	87	66	76.4	+3.3	95	26	58	20	7	0	65	75	5.53	+1.98	1.48	12	13	0	0	4.2	S	--	---	--	6	15	10	5.8	--
Tampa	24	1014.9	1016.0	89	68	78.5	+2.2	95	27	60	16	13	0	66	74	1.91	-1.08	.88	6	9	0	0	7.2	E	34	N	24	19	5	7	4.5	70
West Palm Beach	14	1015.2	1016.2	87	70	78.6	----	91	27	63	18	3	0	67	73	4.23	-.56	1.79	8	10	0	0	8.2	SE	--	---	--	13	8	10	5.3	--
GEORGIA																																
Albany	190	1008.8	1015.9	89	66	77.3	+2.5	95	26	60	18	18	0	63	67	3.76	-.28	2.02	9	9	0	0	5.0	SSW	45	SW	14	11	13	7	5.1	--
Atlanta	977	974.6	1015.2	83	63	72.8	+2.5	91	26	56	21	1	0	60	72	3.73	+.31	1.14	13	10	T	T	7.7	SW	49	SW	1	4	12	15	6.9	55
Athens	798	987.1	------	83	61	72.2	+2.6	91	26	54	9	4	0	--	--	4.65	+1.01	1.23	12	9	T	T	----	---	--	---	--	3	12	16	6.6	--
Augusta	426	1009.1	1015.6	86	64	74.8	+2.4	93	6	55	23	10	0	60	67	5.80	+2.65	2.14	14	9	T	T	6.9	SW	--	---	--	7	10	14	6.5	--
Columbus	382	1002.0	1015.4	87	63	74.7	----	93	25	57	16	9	0	64	75	4.09	-----	1.52	10	9	0	0	5.3	W	--	---	--	8	9	14	6.2	--
Macon	354	1002.7	1015.4	88	65	76.4	----	95	5	58	21	16	0	62	68	5.14	-----	1.58	14	12	0	0	7.6	SSW	38	S	14	6	10	5	6.6	72
Rome	637	992.6	1015.7	83	60	71.3	+2.3	92	26	54	15	4	0	62	79	4.42	-.53	1.32	15	11	T	T	5.8	SW	--	---	--	4	11	16	7.1	--
Savannah	38	1013.9	1016.2	84	66	75.1	+3.4	94	26	61	17	6	0	64	74	4.67	+1.65	1.56	10	8	0	0	8.7	S	39	SE	14	6	13	12	6.4	81
Valdosta	200	1008.1	1016.0	89	64	76.8	+2.5	95	28	58	18	17	0	64	--	2.20	-1.48	1.56	9	6	0	0	8.3	SW	--	---	--	6	14	11	6.3	--
IDAHO																																
Boise	2842	918.7	1014.6	68	40	54.1	-2.0	82	22	30	6	0	3	35	52	1.27	-.16	1.00	5	2	T	T	11.7	NNW	35	NW	7	15	12	4	4.3	86
Lewiston	1413	962.8	1016.4	83	43	55.9	----	85	26	33	6	0	0	36	52	1.34	-----	.88	6	0	T	T	7.0	W	--	---	--	6	14	11	6.2	--
Pocatello	4444	860.8	1013.5	66	38	52.0	-1.0	83	22	30	20	0	6	28	46	.77	-.96	.19	8	3	T	T	10.1	SW	49	W	27	13	5	13	5.1	71
ILLINOIS																																
Cairo	314	1001.0	1013.5	79	62	70.4	+1.0	91	23	49	1	1	0	--	--	6.84	+3.13	1.62	13	10	0	0	7.7	---	36	NW	29	--	--	--	----	60
Chicago	618	991.5	1014.5	72	49	60.5	+2.7	93	24	37	1	2	0	44	61	1.78	-2.72	.32	6	1	0	0	10.0	NNE	54	S	5	4	13	14	6.6	74
Joliet	580	992.9	1014.2	73	47	60.1	+1.5	93	24	33	1	1	0	48	68	1.57	-2.17	.92	7	4	T	0	11.1	NE	--	---	--	5	12	14	6.5	--
Moline	589	991.9	1014.2	73	51	62.0	+1.7	90	24	34	1	1	0	24	32	3.01	-.93	1.10	8	4	T	T	11.1	E	65	SW	5	6	11	14	6.3	61
Peoria	659	991.5	1013.8	75	53	63.6	+2.8	92	24	34	1	1	0	49	63	1.45	-2.61	.69	5	4	T	T	11.0	ENE	61	SW	5	7	11	13	6.6	67
Springfield	598	990.9	1013.7	76	54	64.9	+4.4	91	24	39	1	2	0	26	66	1.75	-2.63	.71	12	8	0	0	11.0	S	57	SW	5	5	13	13	6.9	61
INDIANA																																
Evansville	385	999.3	1014.8	77	57	66.9	+2.6	88	24	45	13	0	0	28	74	5.54	+1.68	3.35	14	8	T	T	7.4	ENE	34	SW	5	3	9	19	7.8	68
Fort Wayne	801	984.1	1015.1	74	49	61.5	+2.3	89	25	36	8	0	0	49	67	1.21	-2.64	.37	8	5	0	0	7.3	SW	43	SW	9	1	15	15	7.2	67
Indianapolis	796	985.4	1015.4	75	53	63.6	+2.2	88	25	43	1	0	0	26	71	2.68	-1.21	.93	13	10	T	T	9.3	E	47	S	5	--	--	--	7.5	61
South Bend	768	986.5	1014.5	72	47	59.9	+.4	88	25	33	2	0	0	47	67	2.41	-1.51	1.60	4	5	0	0	10.0	S	40	WSW	6	3	12	16	6.9	--
Terre Haute	585	993.6	1014.5	76	53	64.8	+1.4	87	25	44	1	0	0	27	71	1.89	-1.98	.49	12	9	0	0	9.3	SSE	40	S	5	2	7	22	7.8	65

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Temperature: Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	*Mb.*	*Mb.*	°F	°F	°F	°F	°F		°F				°F	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M.*		*M.*			*3*	*7*	*10*	*0–*	*4–*	*8–*	*0–10*	%
																							p. h.		*p. h.*									
IOWA																																		
Burlington	605	998.2	1013.7	73	52	62.4	-.2	88	24	34	1	0	0	26	69	3.10	-1.04	1.56	8	5	0	0	9.9	SE	68	SW	5	7	9	15	6.5	58
Charles City	1013	977.3	1014.2	69	48	58.3	+.5	82	23	30	1	0	1	--	--	6.28	+1.95	1.73	13	6	T	T	7.7	--	43	SW	5	10	8	13	5.9	51
Davenport	579	991.9	------	73	53	62.8	+1.5	89	24	33	1	0	0	--	--	3.41	-.53	1.33	9	3	T	T	----	---	---	---	--	--	--	--	---	--
Des Moines	800	981.7	1012.8	71	51	61.1	+.8	86	4	32	1	0	1	26	72	5.60	+1.04	2.15	13	8	T	T	10.7	SE	71	SW	5	6	10	15	6.7	45
Dubuque	641	988.2	------	71	51	60.8	-.5	88	24	33	1	0	0	--	--	3.09	-.23	2.09	10	6	0	0	6.5	---	32	SE	5	--	--	--	6.5	67
Sioux City	1097	970.9	1012.0	70	46	58.1	-1.6	94	23	29	1	1	1	46	70	3.22	-.83	1.25	13	5	T	T	10.7	NNE	60	W	5	9	6	16	6.5	67
KANSAS																																		
Concordia	1375	961.7	1011.2	74	52	63.0	-.2	92	23	40	1	1	0	--	--	10.53	+6.35	6.46	12	12	T	T	8.2	---	40	SW	5	12	8	11	5.4	60
Dodge City	2594	923.8	1010.2	76	49	62.3	-1.2	94	23	35	27	1	0	46	62	1.82	-1.07	.56	12	11	T	T	15.2	S	65	N	18	10	11	10	5.5	72
Goodland	3645	885.5	1011.3	71	40	55.5	-3.9	92	23	29	1	2	4	20	64	1.05	-1.47	.49	8	11	4.1	4	14.0	N	50	NW	5	14	8	9	5.2	--
Topeka	926	979.7	1011.8	78	54	65.6	----	90	23	33	1	2	0	53	71	6.12	-----	2.41	14	13	T	T	10.9	SSW	54	SW	5	6	10	15	6.5	51
Wichita	1372	963.1	1010.6	76	55	65.5	+.4	96	3	36	1	2	0	51	67	2.24	-2.22	1.23	11	9	0	0	14.8	S	63	SE	20	--	--	--	6.3	57
KENTUCKY																																		
Lexington	978	980.0	1015.4	76	55	65.3	+1.0	87	25	39	13	0	0	56	77	5.06	+1.25	1.03	15	11	0	0	8.7	NE	--	---	--	4	9	18	7.3	--
Louisville	485	997.6	1014.6	78	56	67.0	+1.9	92	26	42	13	3	0	56	72	9.04	+5.32	3.97	16	13	T	T	6.4	NE	30	SW	30	4	7	20	7.5	57
LOUISIANA																																		
Baton Rouge	64	1011.9	1014.5	85	67	75.8	+1.6	89	18	62	16	0	0	67	81	3.32	-1.99	1.11	9	8	0	0	6.2	S	--	---	--	4	12	15	6.8	--
Lake Charles	12	1011.9	1013.1	86	68	76.8	+2.8	90	17	62	16	1	0	69	84	7.53	+2.71	1.90	9	10	0	0	9.7	S	--	---	--	--	--	--	6.9	--
New Orleans	12	1013.5	1015.2	86	67	76.3	----	90	18	63	24	2	0	68	82	2.76	------	1.10	9	9	0	0	6.9	S	50	NW	30	4	19	8	6.1	53
Shreveport	174	1004.1	1012.6	86	66	75.7	+2.4	91	23	60	22	7	0	66	77	6.85	+2.63	2.13	12	10	T	T	9.7	SSE	34	SE	1	--	--	--	6.4	76
MAINE																																		
Caribou	624	991.9	1015.6	67	39	52.8	+4.3	88	26	19	8	0	9	35	55	.67	-2.37	.57	4	1	T	T	14.2	SSE	53	WNW	8	6	13	12	6.1	--
Eastport	33	1013.2	1015.9	58	40	49.2	+1.5	71	24	24	8	0	1	--	--	.75	-2.26	.26	8	1	T	T	-----	---	34	NW	7	10	9	12	5.6	67
Portland	61	1013.2	1017.2	64	41	52.8	+1.6	81	6	29	8	0	2	42	70	1.55	-1.85	.65	7	1	0	0	6.8	SSW	49	NW	7	10	5	16	6.2	65
MARYLAND																																		
Baltimore	14	1011.9	1016.6	71	55	63.0	-1.4	84	10	45	8	0	0	52	74	5.00	+1.46	1.44	15	8	0	0	7.8	E	36	NW	7	4	7	20	7.4	47
Frederick	294	------	------	74	54	63.7	----	84	6	34	9	0	0	--	--	4.59	-----	1.62	18	5	0	0	----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																		
Blue Hill Obs.	640	993.9	------	64	44	53.6	-1.1	76	6	31	8	0	1	--	--	1.85	-1.70	.52	9	1	0	0	----	---	50	WNW	7	6	7	18	6.7	49
Boston	12	1012.9	1017.6	64	47	55.8	-1.3	80	6	35	8	0	0	42	66	1.55	-1.63	.39	8	1	0	0	11.8	SW	44	W	7	6	9	16	6.6	60
Nantucket	44	1016.9	1017.5	58	43	50.5	-1.8	65	31	35	21	0	0	44	82	.86	-1.99	.20	10	0	0	0	13.7	---	33	NE	19	5	6	20	7.4	49
Pittsfield	1153	------	------	61	43	53.4	-1.1	77	27	29	8	0	1	--	--	2.91	-.16	.87	12	2	0	0	----	---	--	---	--	6	6	19	7.1	--
MICHIGAN																																		
Alpena	587	992.9	------	59	42	50.5	.0	78	14	28	8	0	3	--	--	1.17	-1.88	.63	6	8	0	0	11.2	---	47	SW	6	7	10	14	6.3	59
Detroit	619	988.8	1015.6	70	47	58.3	+1.4	84	24	31	8	0	1	46	66	2.97	-.24	1.53	5	4	T	T	8.2	N	42	NW	24	5	11	15	6.7	65
Escanaba	594	992.2	1014.6	58	41	49.0	-.6	70	31	29	8	0	4	--	--	1.67	-1.26	.50	10	1	0	0	10.6	---	42	SW	5	10	10	11	5.6	74
Grand Rapids	638	989.5	1014.8	71	45	58.0	+2.3	85	23	28	2	0	2	44	64	1.27	-2.17	.65	7	5	0	0	11.6	E	79	SW	5	7	6	18	6.0	74
Lansing	859	983.4	1015.4	70	46	57.9	+1.1	86	25	30	2	0	2	45	65	1.96	-1.46	1.19	6	4	T	T	14.2	W	47	NW	24	--	--	--	5.8	72
Marquette	677	987.8	1015.2	58	39	48.6	-.4	82	23	25	8	0	4	--	--	3.31	+.35	1.17	12	5	2.2	2.1	8.4	---	37	SW	5	--	--	--	6.5	68
Muskegon	627	991.5	1014.6	68	44	55.6	+1.3	86	24	25	2	0	3	44	66	1.61	-1.23	.45	10	7	0	0	9.7	E	--	---	--	8	10	13	6.1	--
Sault Ste. Marie	721	988.5	1015.4	60	37	48.5	+.3	78	23	25	8	0	9	38	70	2.02	-.62	.42	12	3	.3	.3	8.9	E	49	SE	5	8	9	14	6.5	60
Ypsilanti	722	986.8	1015.3	72	47	59.2	----	84	24	32	8	0	1	45	64	2.12	-----	1.43	5	4	T	0	9.4	NE	34	WSW	6	5	12	14	6.7	--
MINNESOTA																																		
Duluth	1128	961.7	1013.6	56	36	46.0	----	80	23	24	2	0	11	36	71	6.45	-----	2.25	17	5	6.0	4.3	13.3	ESE	49	N	5	5	12	14	7.0	53
Intern'l Falls	1179	971.9	1013.2	60	36	47.7	-3.4	91	23	25	7	1	10	37	69	5.31	+2.73	2.49	14	5	2.3	3.0	-----	---	--	---	--	6	8	17	6.9	--
Minneapolis	830	978.7	1012.1	66	46	56.1	-1.6	87	23	30	1	0	1	22	67	2.87	-.80	1.08	13	3	T	T	13.6	ESE	52	SW	5	8	4	19	6.7	43
Rochester	1014	976.0	1013.0	67	46	56.5	-.4	84	23	30	1	0	2	22	66	1.75	-2.05	.48	13	5	0	0	12.2	SE	--	---	--	3	9	19	7.5	--
St. Cloud	1034	974.6	1012.5	63	41	52.0	-4.3	85	23	30	1	0	2	21	69	5.54	+2.05	2.52	16	6	T	T	10.2	E	--	---	--	6	7	18	7.0	--
St. Paul	703	986.1	1012.4	66	46	56.1	-1.8	88	23	30	1	0	1	22	65	3.47	+.20	1.70	14	3	0	0	12.4	SE	49	SSW	5	7	5	19	7.2	--
MISSISSIPPI																																		
Jackson	315	1002.7	1014.4	87	65	75.9	+3.4	95	23	58	16	10	0	65	74	4.12	-.55	2.74	11	8	0	0	6.5	SSE	35	S	30	5	11	15	6.7	66
Meridian	294	1001.4	1014.8	87	64	75.2	+3.9	96	26	57	16	9	0	64	76	6.88	+2.56	3.70	8	7	0	0	5.1	SW	--	---	--	5	9	17	6.9	--
Vicksburg	234	1004.7	1014.2	83	66	74.6	+1.7	90	26	60	15	1	0	66	81	3.89	-.43	1.15	11	8	0	0	5.0	SE	30	S	2	6	11	14	6.6	60
MISSOURI																																		
Columbia	733	984.4	1012.5	76	55	65.3	+1.0	87	24	37	1	0	0	54	71	3.95	-.51	1.34	13	10	0	0	9.4	SSE	58	SW	5	--	--	--	6.6	58
Kansas City	741	984.8	1011.9	77	57	67.0	+2.2	90	23	37	1	1	0	53	66	3.26	-.68	1.27	12	9	T	T	9.3	NE	68	SW	5	9	8	14	6.1	61
St. Joseph	809	977.3	1011.6	77	54	65.6	+1.4	91	4	35	1	2	0	52	70	8.03	+3.33	1.50	12	13	T	T	10.8	S	62	SW	5	8	7	16	6.4	56
St. Louis	465	992.9	1013.3	77	57	67.0	+1.2	92	24	40	1	2	0	54	68	3.13	-.79	1.17	12	4	0	0	7.7	SE	56	SW	5	--	--	--	7.0	59
Springfield	1265	965.8	1012.6	75	55	65.0	+1.3	86	24	45	1	0	0	56	78	6.91	+1.72	2.74	13	11	T	T	11.4	SSE	47	NE	19	2	12	17	7.3	45
MONTANA																																		
Billings	3568	889.6	1013.7	62	38	49.9	-6.2	83	22	23	1	0	7	33	57	2.07	----	.58	9	1	5.4	2	12.1	SW	38	SW	17	7	12	12	6.0	66
Butte	5553	828.3	1016.3	57	28	42.4	-5.0	75	27	15	4	0	24	26	57	1.11	-.65	.49	7	0	11.4	5	11.4	NW	--	---	--	4	14	13	6.8	--
Glasgow	2090	938.4	1013.1	66	39	52.4	-3.3	87	27	26	1	0	8	33	54	1.12	-.81	.53	9	3	T	T	-----	---	--	---	--	4	9	18	7.1	--
Great Falls	3663	886.6	1013.3	61	40	50.8	-3.8	80	27	28	3	0	7	29	50	.67	-1.57	.28	10	1	2.3	1	14.1	SW	56	SW	22	2	9	20	7.6	70
Havre	2488	924.5	1013.2	65	41	52.9	-.5	88	27	26	1	0	6	--	--	1.18	-.86	.65	11	3	T	T	10.4	---	42	SW	21	4	13	14	7.0	60
Helena	3893	872.3	1014.9	61	36	48.4	-3.2	81	27	24	1	0	7	30	55	1.36	-.62	.88	7	0	8.4	3	8.6	W	43	SW	18	3	15	13	6.8	66
Kalispell	2965	910.6	1014.0	61	37	49.1	----	76	26	28	31	0	6	32	--	.43	-----	.16	7	2	T	0	10.4	SSE	--	---	--	1	11	19	7.6	--
Miles City	2629	929.2	1013.8	63	39	51.0	-----	86	22	26	1	0	9	36	--	.94	-----	.22	11	3	1.4	1	11.5	WNW	--	---	--	6	11	14	6.5	--
Missoula	3201	901.5	1016.0	62	36	48.7	-3.5	79	26	29	25	0	7	31	56	.61	-1.14	.36	9	0	.1	T	6.6	NW	35	NE	9	2	9	20	7.6	46
NEBRASKA																																		
Grand Island	1841	945.5	1010.9	69	47	58.1	----	94	23	33	5	1	0	23	63	4.11	-----	1.29	14	3	T	0	11.6	NNE	--	---	--	9	7	15	5.6	--
Lincoln	1180	949.2	1011.5	72	49	60.3	-.3	90	23	34	1	1	0	25	70	4.03	-.05	1.08	11	8	0	0	11.0	N	60	W	5	9	9	13	6.0	61
Norfolk	1551	957.3	1012.1	68	46	56.8	-3.4	95	23	30	1	1	1	23	71	4.82	+.87	2.35	16	8	T	T	13.8	SE	--	---	--	11	4	16	5.9	--
North Platte	2783	913.6	1011.7	68	44	55.9	-2.8	93	23	30	5	2	2	21	67	3.86	+1.08	.80	14	11	6.0	6.0	12.1	SE	56	NW	5	9	10	12	6.1	49
Omaha	978	972.6	1011.8	73	51	61.7	-.7	90	23	34	1	1	0	25	67	4.94	+1.17	1.67	13	6	0	0	11.9	N	50	SE	8	--	--	--	5.8	50
Valentine	2581	921.1	1012.5	65	42	53.4	-2.8	91	23	24	1	2	5	--	--	2.18	-.64	1.13	13	7	7.0	6.0	9.6	---	36	NW	5	6	12	13	6.6	62
NEVADA																																		
Elko	5075	843.6	1014.6	66	31	48.6	----	83	22	20	19	0	19	31	55	.49	-----	.21	5	1	1.5	T	6.2	NW	--	---	--	14	8	9	4.6	--
Ely	6257	807.3	1013.7	61	30	47.3	-.6	84	30	7	4	0	19	--	--	.87	-.52	.55	6	4	7.5	3	10.2	---	47	SW	15	9	13	9	5.7	75
Las Vegas	2162	933.3	1007.8	88	58	72.5	+2.0	103	31	40	5	17	0	16	13	T	-.18	T	0	0	0	0	8.8	SW	--	---	--	22	4	5	2.9	--
Reno	4404	865.2	1013.9	72	36	54.0	+1.1	90	30	20	7	1	10	29	43	.20	-.43	.14	3	0	T	T	6.2	W	38	S	1	17	9	5	3.7	77
Winnemucca	4299	866.9	1014.2	71	34	52.4	-1.5	88	30	20	9	0	11	24	37	.23	-.65	.09	6	2	2.0	1	9.2	---	45	NW	1	13	8	10	4.9	83
NEW HAMPSHIRE																																		
Concord	339	1006.4	1017.3	69	42	55.6	+2.7	81	6	30	9	0	2	40	61	1.61	-1.40	.59	6	0	0	0	6.4	ESE	33	W	8	7	6	18	7.0	54
Mt. Washington	6262	807.0	1021.0	41	28	34.9	-.8	55	28	-1	8	0	19	--	--	2.78	-2.94	.66	15	1	7.3	5	----	---	--	---	--	4	9	18	7.0	39
NEW JERSEY																																		
Atlantic City	8	1014.6	------	62	51	56.3	-1.8	82	7	43	8	0	0	--	--	2.52	-.53	.74	15	1	0	0	----	---	40	N	16	4	8	19	7.6	54
Newark	11	1014.9	1017.0	67	50	58.7	-2.7	83	6	40	8	0	0	47	70	2.58	-1.34	.65	15	1	0	0	9.6	NE	38	W	7	8	3	20	7.5	--
Trenton	56	1009.8	------	68	51	59.3	-1.8	82	6	41	8	0	0	--	--	3.57	+.49	1.46	14	1	0	0	----	---	32	N	7	5	6	20	7.3	40

CLIMATOLOGICAL DATA

able 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F	°F	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0– 3	4– 7	8– 10	0–10	%
NEW MEXICO																																
lbuquerque	5310	844.9	1007.1	81	51	65.7	+2.4	92	31	35	5	2	0	22	22	.06	-.54	.04	2	3	0	0	11.2	S	72	W	4	16	13	2	3.6	88
layton	4969	843.9	1010.9	77	42	59.6	-.4	92	23	33	5	1	0	36	48	.80	-1.67	.29	4	5	T	0	16.7	SSW	--	---	--	10	14	7	4.7	--
aton	6379	802.6	1009.2	73	37	55.2	---	86	30	26	6	0	9	26	37	.44	-----	.24	4	6	T	0	12.5	SW	--	---	--	9	15	7	5.7	--
oswell	3611	887.2	1008.3	87	52	69.2	-.2	96	29	37	6	13	0	30	31	1.78	+.69	1.75	2	5	.5	1	10.6	SSE	57	SW	1	11	11	9	5.0	84
NEW YORK																																
lbany	277	1012.5	1016.6	68	47	57.5	- .2	85	27	31	9	0	1	45	68	2.89	+.30	.76	14	3	0	0	9.1	S	50	W	7	5	6	20	7.3	55
ear Mountain	1300	------	------	63	47	55.4	---	81	6	36	9	0	0	--	--	6.02	-----	1.00	13	5	0	0	----	---	--	---	--	8	7	16	6.7	--
inghamton	858	986.1	1016.6	69	47	57.7	+.3	83	4	30	9	0	2	46	75	3.53	-.22	1.03	15	0	0	0	5.5	NNE	25	NW	7	4	10	17	7.5	49
uffalo	693	987.8	1016.0	69	46	57.3	+1.4	90	5	31	8	1	1	46	69	2.16	-.94	.86	9	3	T	T	12.6	SW	63	SW	6	4	9	18	7.0	65
anton	406	999.0	------	67	44	55.5	+1.3	84	27	27	8	0	4	--	--	1.60	-1.40	.37	14	2	0	0	----	---	40	SW	6	6	12	13	6.4	49
ew York	10	1015.6	1017.4	66	51	58.4	-2.2	80	21	39	8	0	0	46	70	2.50	-.74	.69	13	2	0	0	11.3	NE	59	NW	7	7	6	18	7.3	44
ew York Int'l AP		1016.9	1017.6	65	49	57.1	---	81	7	42	2	0	0	46	74	2.78	-----	.99	15	1	0	0	11.1	S	--	---	--	5	7	19	7.5	--
swego	292	1003.4	1015.9	64	47	55.4	+1.7	79	27	34	8	0	0	--	--	2.23	-.81	.66	15	3	0	0	----	---	25	SE	5	9	8	14	5.9	62
ochester	543	996.6	1015.9	69	46	57.1	---	85	5	32	8	0	1	44	67	2.81	-.13	1.30	10	3	0	0	9.5	WSW	63	SW	6	5	9	17	6.7	74
chenectady		------	------	67	47	56.7	-2.1	84	27	31	8	0	1	--	--	3.15	+.24	.71	13	2	0	0	----	---	40	W	7	11	7	13	5.6	--
yracuse	399	994.2	1016.2	69	47	57.9	+1.6	84	27	31	8	0	1	45	67	2.43	-.57	.87	7	2	0	0	8.9	S	40	NW	7	5	11	15	6.9	57
NORTH CAROLINA																																
sheville	2203	------	1015.8	78	56	67.1	+4.5	90	5	49	23	1	0	56	78	4.03	+.60	1.64	12	9	T	T	5.4	NNW	28	N	24	3	13	15	7.1	70
harlotte	741	988.5	1016.1	81	61	71.3	+2.4	92	6	52	9	2	0	58	70	3.25	--.38	.93	14	13	0	0	7.1	SW	30	NE	26	3	9	19	7.2	62
reensboro	891	984.8	1016.2	78	57	67.6	+1.2	91	6	44	9	2	0	57	75	5.39	+1.35	1.72	16	13	0	0	7.0	SW	42	NE	25	4	9	18	7.1	58
atteras	4	1015.9	1016.2	74	62	68.0	-.7	79	7	51	[illegible]	0	0	62	83	1.90	-1.81	.51	13	7	0	0	11.7	S	37	N	8	2	14	15	7.0	63
aleigh	400	1000.3	1015.8	80	60	69.8	+1.3	95	6	46	9	2	0	58	75	4.92	+1.11	2.06	14	8	0	0	5.3	SW	23	SW	10	8	18	5	5.2	62
ilmington	6	1014.9	1016.4	79	63	71.1	+.3	88	5	48	9	0	0	64	--	3.47	+.03	1.46	8	[illegible]	0	0	6.4	SW	21	S	15	9	11	11	5.8	72
inston-Salem	967	981.0	1015.9	79	58	68.1	+1.6	92	[illegible]	48	9	2	0	57	73	5.23	+1.34	1.16	11	14	0	0	6.9	SW	--	---	--	4	9	18	7.0	--
NORTH DAKOTA																																
ismarck	1653	951.9	1012.6	61	39	49.9	-3.1	87	22	26	7	0	7	20	70	2.89	+.57	.62	12	2	10.3	5.7	13.9	WNW	52	NW	31	4	10	17	7.0	42
evils Lake	1471	959.0	1011.9	57	40	48.5	-4.1	82	22	25	1	0	8	--	--	4.13	+2.10	1.19	12	4	12.7	7.4	10.6	---	42	NW	30	9	8	14	6.3	51
argo	895	977.3	1011.9	61	42	51.2	-3.9	87	23	30	1	0	1	41	73	4.99	+2.10	1.17	15	5	1.0	1.0	19.0	NNE	44	N	5	4	10	17	7.0	49
illiston	1877	945.1	1012.2	61	41	50.6	-3.4	84	22	26	1	0	8	--	--	1.31	-.75	.66	9	0	7.3	3.5	9.9	---	36	NW	30	3	12	16	7.3	68
OHIO																																
kron		971.2	1016.0	71	47	59.1	-.1	83	5	27	8	0	2	49	72	2.58	-1.32	.59	13	9	0	0	7.4	SW	--	---	--	6	9	16	7.0	--
incinnati	553	992.6	1015.2	77	57	66.7	+1.6	90	25	43	8	1	0	53	72	4.06	+.36	1.42	16	10	T	T	7.8	SW	--	---	--	3	6	22	7.8	47
leveland	787	987.8	1015.5	73	49	60.7	+2.6	89	24	35	8	0	0	48	66	3.22	+.10	1.30	10	6	T	T	9.2	N	38	SW	6	6	12	13	6.5	68
olumbus	724	985.4	1015.2	75	54	64.4	+2.1	87	5	35	8	0	0	52	70	1.15	-2.24	.49	9	5	T	T	7.6	SE	32	SW	22	4	11	16	7.1	61
ayton	1002	979.3	1015.3	73	53	62.7	+.9	86	25	36	8	0	0	51	70	2.88	-.72	1.31	12	8	0	0	9.2	SW	36	SW	5	2	10	19	7.7	55
andusky	603	993.6	------	69	51	60.3	+1.1	86	5	4	8	0	0	--	--	1.17	-1.98	.71	8	5	0	0	----	---	31	SW	6	6	17	8	5.5	64
oledo	621	992.2	1015.2	71	48	59.4	+1.4	87	25	34	2	0	0	48	68	1.64	-1.85	.62	7	5	0	0	12.1	SW	42	SW	6	2	15	14	6.8	65
oungstown	1178	973.2	1015.8	71	47	58.7	+.9	85	5	28	8	0	1	48	70	3.98	+.83	.96	11	10	0	0	10.0	SE	30	WSW	6	6	7	18	6.6	--
OKLAHOMA																																
klahoma City	1254	965.1	1010.8	79	58	68.4	+.7	91	3	49	6	1	0	58	75	9.53	+4.65	4.73	11	15	T	T	15.0	S	26	S	--	--	--	--	6.0	59
ulsa	672	987.5	1011.2	78	58	68.0	+.8	89	3	49	1	0	0	58	75	9.32	+4.27	4.44	15	12	T	T	11.6	S	43	NW	14	5	7	19	7.2	48
OREGON																																
aker	3446	895.7	1017.1	63	35	49.2	-2.5	78	26	28	6	0	9	29	--	.32	-1.23	.23	4	0	.3	T	9.6	NNW	23	N	7	13	12	6	4.4	77
rns	4143	873.4	1016.1	66	35	50.7	-.2	78	31	23	6	0	10	27	49	.29	-.47	.17	3	0	T	T	----	---	--	---	--	14	9	8	4.5	--
igene	364	1006.8	1020.4	69	41	55.0	---	87	26	34	[illegible]	0	0	43	69	.95	-----	.33	7	0	T	0	8.3	N	--	---	--	9	12	10	5.6	--
eacham	4050	877.4	1018.6	57	34	45.4	---	78	26	23	3	0	13	32	64	1.43	-----	.65	8	1	8.1	4	6.2	WNW	--	---	--	8	10	13	6.1	--
edford	1314	970.5	1018.2	75	41	58.0	-.2	94	31	32	7	3	2	39	51	.43	-.67	.23	5	2	T	T	7.3	NW	--	---	--	13	4	14	5.1	--
endleton	1489	963.4	1017.2	68	44	56.2	-.9	85	26	34	3	0	0	34	48	.88	-.41	.54	5	2	0	0	9.2	W	--	---	--	12	10	9	4.9	--
ortland	30	1019.3	1020.5	67	47	56.8	-.1	85	25	41	7	0	0	42	67	.76	-1.43	.46	6	1	T	T	6.6	NNW	27	SW	17	4	9	18	7.1	58
oseburg	479	1001.4	1020.0	70	44	56.6	+.6	87	26	37	[illegible]	0	0	--	--	.71	-1.22	.20	6	0	T	T	5.2	---	23	W	1	10	12	9	5.5	79
alem	195	1012.9	1020.3	69	42	55.2	-1.1	86	25	36	15	[illegible]	0	43	67	1.21	-.81	.47	7	2	T	T	5.2	NW	--	---	--	8	10	13	6.1	--
exton Summit	3836	------	------	61	38	49.6	---	80	26	25	2	0	10	--	--	.95	-----	.59	6	0	7.0	4	----	---	--	---	--	12	10	9	4.8	--
outdale	29	------	------	67	42	54.5	---	84	25	36	24	[illegible]	0	43	69	1.00	-----	.26	9	0	T	T	6.1	WNW	--	---	--	4	10	17	6.9	--
PENNSYLVANIA																																
llentown	381	1003.1	1017.1	69	49	58.7	-1.8	83	6	34	9	0	0	47	73	4.53	+1.03	1.11	15	5	T	T	7.2	E	--	---	--	2	11	18	7.7	--
rwensville	2215	------	------	68	44	56.1	---	86	5	23	8	0	2	45	72	3.96	-----	1.04	15	8	T	T	9.6	SSE	30	W	6	2	10	19	7.6	--
rie	655	------	------	66	50	57.8	+1.0	86	5	39	8	0	0	--	--	2.64	-.76	1.21	12	6	0	0	----	---	26	SW	6	6	9	16	6.4	49
arrisburg	335	1003.1	1016.5	70	52	60.8	-1.0	80	[illegible]	37	9	0	0	49	72	5.60	+2.16	1.56	15	5	T	T	6.2	ESE	34	W	7	3	7	21	7.8	43
ark Place	1932	------	------	65	45	55.4	---	79	6	29	8	0	1	--	--	3.22	-----	.63	18	2	0	0	----	---	--	---	--	4	10	17	7.4	--
hiladelphia	26	1015.9	1016.7	69	52	60.7	-2.2	82	6	42	8	0	0	50	73	4.57	+1.31	1.38	13	4	0	0	8.9	ENE	22	W	7	5	7	19	7.5	43
ittsburgh	1248	985.1	1015.3	74	53	63.3	+.7	87	5	36	8	0	0	49	66	3.64	+.43	1.37	13	6	0	0	7.8	S	30	NW	13	2	10	19	7.6	45
eading	266	1005.1	1016.9	70	52	60.5	-1.4	82	6	39	9	0	0	--	--	4.92	+1.25	1.68	8	3	0	0	----	---	45	N	7	3	9	19	7.5	44
cranton	746	987.1	------	69	49	59.4	---	82	27	35	8	0	0	--	--	3.70	+.43	.76	17	7	0	0	----	---	34	N	7	6	11	14	6.6	42
illiamsport	527	997.3	1016.1	71	49	59.7	-1.0	81	21	31	[illegible]	[illegible]	1	48	69	2.44	-1.14	.87	12	4	T	T	7.0	[illegible]	44	WNW	7	2	13	16	7.4	--
RHODE ISLAND																																
ock Island		1016.3	------	57	46	51.2	-1.6	67	30	38	8	0	0	--	--	3.57	+.09	.90	10	1	0	0	----	---	56	NW	7	5	6	20	7.2	49
rovidence	55	1011.5	1017.9	66	47	56.6	-1.9	79	7	37	8	0	0	43	71	2.15	-.81	1.03	10	1	0	0	8.7	SE	--	---	--	--	--	--	--	--
SOUTH CAROLINA																																
harleston	9	1014.6	1016.1	[illegible]	67	73.8	+1.1	90	5	59	21	1	0	64	79	3.20	+.20	.76	15	13	T	T	5.6	S	35	NE	8	9	8	14	5.9	71
olumbia	332	1007.8	1015.6	85	63	74.0	+2.1	[illegible]	26	54	9	9	0	60	68	4.29	+1.20	2.55	11	[illegible]	T	T	7.1	SW	29	S	2	10	10	11	5.7	70
lorence	146	1010.2	1016.0	84	61	72.4	-----	95	6	46	9	6	0	61	74	2.89	-----	1.01	13	9	0	0	7.3	SSW	--	---	--	7	12	12	5.8	--
reenville	1006	979.0	1015.3	82	61	71.1	+3.9	92	26	54	23	1	0	58	71	4.44	+1.41	1.83	12	14	0	0	6.8	SW	31	SW	12	3	10	18	7.6	63
partanburg	801	986.5	1016.0	82	61	71.2	+2.2	90	6	53	9	3	0	58	70	3.87	+.27	1.31	10	10	0	0	7.5	SW	60	WNW	2	2	14	15	7.1	--
SOUTH DAKOTA																																
ron	1282	965.1	1012.1	65	43	54.0	-2.4	94	23	22	1	1	4	21	70	2.65	-.33	1.18	12	6	1.3	1.3	13.5	NW	61	NW	5	8	10	13	6.1	62
pid City	3215	899.4	1013.3	62	[illegible]	50.5	-3.5	85	22	18	1	0	9	18	63	2.43	-.51	.94	14	5	11.6	9.6	15.1	NNW	52	NW	2	11	9	11	5.4	81
oux Falls	1420	961.1	1012.6	67	43	54.7	-4.1	94	23	22	1	1	2	22	72	4.33	+.61	1.03	16	8	T	T	12.4	WNW	46	ESE	8	8	8	15	6.6	--
TENNESSEE																																
istol	1519	962.1	1015.7	77	56	66.5	+1.6	[illegible]	5	49	16	0	0	58	78	9.71	+5.62	1.99	15	14	T	T	5.0	WSW	--	---	--	4	10	17	6.9	--
attanooga	670	987.8	1014.8	83	61	71.7	+6.2	92	26	54	16	4	0	61	76	5.67	+1.88	1.23	13	10	0	0	4.4	S	32	W	19	3	8	20	7.4	40
oxville	949	980.7	1015.3	81	60	70.5	+3.8	89	[illegible]	53	21	0	0	60	74	5.42	+1.67	1.17	15	15	0	0	6.9	SW	36	SW	30	[illegible]	11	16	7.3	58
mphis	263	1003.4	1013.3	80	65	72.1	+1.5	89	23	55	6	0	0	62	76	6.13	+1.94	2.27	11	11	[illegible]	0	8.3	SSW	32	NW	19	3	10	18	7.5	65
shville	577	994.9	1014.3	81	61	70.9	+2.7	91	25	55	15	3	0	61	78	4.10	+.23	2.25	12	9	T	T	6.1	S	47	NW	29	5	6	20	7.5	29
TEXAS																																
ilene	1752	950.2	1009.7	84	62	73.0	+2.4	90	19	50	26	8	0	59	69	5.09	+1.13	2.51	7	9	T	T	12.9	S	68	NE	13	3	13	15	7.2	65
arillo	3590	885.5	1008.4	[illegible]	51	65.9	+3.8	93	8	39	26	8	0	40	53	1.83	-.96	1.14	8	[illegible]	T	T	14.3	SW	53	W	5	11	12	8	5.0	76
stin	515	995.6	1011.2	85	67	76.2	+1.6	93	30	58	27	7	0	67	[illegible]	4.19	-.45	1.88	7	7	T	T	9.2	SSE	43	S	31	--	--	--	7.0	43
g Spring	2533	922.8	1009.9	85	60	72.3	+.1	97	4	50	26	[illegible]	0	27	64	7.49	+4.97	3.19	[illegible]	12	T	T	14.1	[illegible]	--	---	--	5	11	15	6.9	--
ownsville	16	1008.1	1009.8	89	75	81.9	+3.3	95	30	67	19	16	0	73	81	1.16	-1.42	.75	4	4	0	0	14.5	SE	47	[illegible]	19	--	--	--	5.3	55
rpus Christi	40	1010.2	1010.8	88	73	80.2	+5.7	95	30	65	14	7	[illegible]	73	87	1.63	-1.60	.71	8	9	[illegible]	0	14.0	SSE	42	SE	19	4	12	15	6.8	73
llas	487	993.9	1011.3	84	65	74.2	+1.3	94	19	55	1	7	0	62	70	6.02	+1.54	2.00	9	5	T	T	10.0	SSE	40	S	5	4	13	14	6.6	42
l Rio	957	976.0	1008.0	89	69	79.1	+2.1	104	30	60	28	18	0	32	66	2.05	-.83	1.34	6	7	0	0	9.8	---	33	NW	31	2	13	16	7.5	55

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F	°F	°F		°F				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0—3	4—7	8—10	0—10	%
El Paso	3920	882.8	1007.2	85	59	72.1	+2.1	94	30	44	6	4	0	13	11	.10	-.23	.10	1	3	T	T	13.2	W	70	NW	4	14	9	8	4.5	79
Fort Worth	688	987.8	1011.3	83	64	73.7	+1.5	94	19	55	1	4	0	61	71	6.16	+1.51	1.93	10	9	T	T	13.4	S	42	NNW	20	5	14	12	6.2	--
Galveston	7	1012.5	1012.9	84	73	78.6	+3.8	88	31	65	20	0	0	71	82	1.69	-1.73	1.00	5	5	0	0	12.1	SE	35	N	20	5	11	15	6.8	61
Houston	41	1010.5	1012.6	86	70	78.0	+4.0	90	31	61	20	3	0	69	82	2.49	-1.61	1.09	5	6	0	0	9.9	SE	34	NE	20	1	11	19	7.6	51
Laredo	500	994.2	1008.5	94	72	83.3	+2.3	105	4	65	20	27	0	67	65	4.07	+.33	1.46	9	10	0	0	13.6	SE	--	---	--	--	--	--	7.1	--
Lubbock	3238	899.8	1009.5	82	54	68.2	+.5	93	8	43	26	7	0	52	60	3.93	+1.39	1.77	10	11	T	T	14.3	S	--	---	--	6	12	13	6.2	--
Palestine	491	994.9	1012.5	83	65	74.1	+1.4	89	19	59	2	0	0	--	--	6.06	+1.52	3.31	12	9	0	0	7.4	---	30	NW	13	5	16	10	6.5	71
Port Arthur	5	978.0	1012.5	85	69	76.8	----	89	31	62	16	0	0	70	86	3.58	------	1.93	5	5	T	T	9.9	SSE	37	S	4	3	12	16	7.0	54
San Angelo	1903	944.1	1004.6	85	62	73.7	+.7	96	29	50	2	11	0	29	63	3.70	+.52	1.58	7	13	0	0	10.0	SSE	45	N	15	5	10	16	7.0	--
San Antonio	782	986.8	1010.6	86	68	76.9	+1.8	94	31	61	23	6	0	66	76	2.41	-.79	1.29	5	5	0	0	10.5	SE	34	E	11	--	--	--	7.6	46
Victoria	109	1005.1	1011.3	89	71	79.7	+3.1	95	31	63	21	14	0	70	81	1.20	-2.88	.56	5	7	T	T	11.8	SE	--	---	--	4	12	15	7.0	--
Waco	504	992.9	1010.6	85	66	75.1	+.2	93	19	56	2	4	0	63	72	4.54	+.02	.95	10	9	0	0	11.9	S	--	---	--	4	10	17	6.9	--
Wichita Falls	1027	974.6	1010.5	82	61	71.4	-.9	91	3	50	2	4	0	60	71	7.29	+2.67	2.77	10	12	T	T	11.9	SE	51	NW	25	10	10	11	5.5	--
UTAH																																
Milford	5029	843.9	1012.2	72	36	53.9	-2.9	87	22	23	5	0	10	26	40	.38	-.26	.25	4	3	T	T	9.3	NW	--	---	--	9	16	6	5.0	--
Salt Lake City	4222	869.3	1012.7	67	41	54.3	-1.4	86	22	32	3	0	3	33	50	2.18	+.41	.98	12	4	2.2	2	8.4	SE	43	SE	17	14	5	11	5.0	74
VERMONT																																
Burlington	398	1001.0	1016.0	68	45	56.5	----	86	27	27	8	0	5	43	65	1.58	-1.27	.68	12	1	0	0	10.8	SSW	40	SW	6	4	14	13	6.6	65
VIRGINIA																																
Cape Henry	16	1015.2	1015.9	69	57	63.1	-1.1	96	6	43	9	1	0	--	--	2.22	-1.35	.72	12	7	0	0	----	---	31	N	6	6	9	16	6.7	65
Lynchburg	947	982.4	1015.9	75	55	64.9	-1.0	90	5	42	21	2	0	55	77	4.36	+.73	1.30	16	10	0	0	8.0	SSW	27	SW	10	4	7	20	7.5	50
Norfolk	11	1013.2	1016.5	74	58	65.7	-.5	94	6	47	9	1	0	56	78	2.27	-1.54	.55	13	4	0	0	9.8	NE	25	NE	5	8	18	7.1	56
Richmond	162	1010.2	1016.2	75	56	65.6	-.9	95	6	40	9	1	0	57	79	5.21	+1.42	1.28	16	10	T	T	5.3	SE	33	NW	23	4	5	22	7.7	48
Roanoke	1192	973.9	1015.9	76	55	65.5	+.4	91	5	42	8	1	0	55	75	8.42	+5.04	2.97	20	11	0	0	7.6	SE	--	---	--	3	8	20	7.7	--
Urbanna	31	1015.6	------	72	55	63.4	----	94	6	38	9	1	0	--	--	3.59	------	.74	15	8	0	0	----	---	--	---	--	4	8	19	7.4	--
Wash.Nat'l. AP	14	1012.5	1016.5	73	56	64.5	+.8	93	6	44	9	1	0	53	73	5.76	+2.06	1.27	17	8	0	0	9.7	NE	32	NE	18	4	6	21	7.6	44
WASHINGTON																																
Ellensburg	1727	954.6	1017.1	66	39	52.8	-2.7	80	12	33	24	0	0	34	52	.06	-.53	.06	1	0	0	0	18.5	NW	--	---	--	7	16	8	5.8	--
Kelso	17	------	------	65	39	51.9	----	84	25	34	15	0	0	41	70	.79	------	.25	7	0	T	T	6.7	WNW	--	---	--	6	8	17	6.8	--
North Head	194	1013.5	1021.3	53	45	48.9	-2.0	67	25	40	2	0	0	--	--	1.28	-1.67	.19	16	0	T	T	15.2	---	42	S	17	5	5	21	7.5	38
Olympia	190	1012.9	1020.3	64	38	51.1	----	83	25	29	7	0	4	40	70	.79	------	.52	6	0	T	T	6.4	SSW	--	---	--	7	8	16	6.7	--
Port Angeles	8	1019.6	1020.9	55	44	49.6	----	66	24	39	23	0	0	42	79	.91	------	.43	13	0	0	0	12.4	W	--	---	--	6	10	15	6.5	--
Seattle	14	1019.0	1020.2	62	46	54.1	-2.5	77	25	40	7	0	0	42	67	.64	-1.23	.24	9	0	0	0	9.6	SW	36	SW	17	5	7	19	6.7	49
Seattle-Tacoma AP	379	1005.8	1019.9	62	42	51.6	----	79	25	34	7	0	0	40	69	.78	------	.28	11	0	0	0	11.1	SW	--	---	--	4	10	17	7.4	--
Spokane	2357	946.5	1015.7	64	40	52.2	-3.3	80	12	32	6	0	2	32	49	.72	.70	.50	7	0	.2	T	10.9	SW	37	SW	29	4	17	10	6.2	73
Stampede Pass	3960	880.8	1020.6	46	32	38.9	----	66	26	25	5	0	18	--	--	3.03	------	.81	14	0	15.5	145	13.3	---	36	---	17	6	7	18	7.1	--
Stevenson	319	------	------	64	44	54.0	----	83	31	38	6	0	0	--	--	1.26	------	.39	9	0	T	T	----	---	--	---	--	4	9	18	7.2	--
Tacoma	127	1012.9	1019.6	61	45	52.8	-1.3	77	25	37	7	0	0	--	--	.56	-1.56	.26	11	0	0	0	8.8	---	28	SW	4	8	13	10	5.4	59
Tatoosh	101	1017.6	1021.0	52	44	47.7	-1.9	62	25	39	17	0	0	44	86	3.74	-.26	.83	17	0	T	T	11.2	W	40	S	21	3	7	21	7.9	47
Walla Walla	949	981.0	1017.2	70	47	58.6	-1.0	88	26	38	3	0	0	37	--	.49	-1.12	.27	3	0	0	0	8.6	SW	24	SW	4	15	12	4	3.9	78
Yakima	1058	977.3	1016.5	74	39	56.5	-1.7	87	12	30	4	0	3	33	43	.08	-.37	.08	1	0	0	0	9.1	W	--	---	--	7	15	9	5.5	--
WEST VIRGINIA																																
Elkins	1969	947.5	1016.1	71	48	59.2	+1.5	87	5	29	8	0	2	51	78	5.61	+1.56	.96	17	7	0	0	3.8	NW	31	NW	17	1	8	22	8.3	43
Huntington	565	------	------	80	55	67.2	+4.8	95	5	41	8	2	0	--	--	3.60	-.47	.61	18	--	0	0	----	NE	--	---	--	--	---	---	---	--
Parkersburg	615	------	1015.4	75	54	64.3	+.5	91	5	36	8	1	0	52	--	3.85	+.47	1.42	16	7	0	0	6.7	SSW	18	N	7	2	9	20	7.8	44
Petersburg	1013	979.3	------	75	51	63.1	----	91	5	34	8	1	0	--	--	3.71	------	.84	20	4	0	0	----	---	---	---	--	3	6	22	8.1	--
WISCONSIN																																
Green Bay	689	988.5	1014.4	65	41	53.0	-1.9	87	24	25	8	0	5	39	62	1.50	-2.02	.53	7	4	0	0	11.6	NE	109	SW	5	9	8	14	6.3	71
La Crosse	669	988.2	1012.8	68	47	57.3	-.6	82	24	28	2	0	2	23	68	3.14	-.61	1.05	11	8	0	0	10.8	SE	61	S	5	--	--	--	7.3	59
Madison	857	982.4	1014.2	71	45	57.9	+.3	92	24	30	2	1	3	44	65	3.43	-.42	2.08	8	6	T	T	13.4	SE	77	SW	5	--	--	--	6.4	75
Milwaukee	674	989.2	1014.6	64	44	53.8	+1.2	90	24	33	2	1	0	42	68	2.04	-1.31	1.02	9	5	0	0	14.4	NNE	72	SW	5	6	10	15	6.6	59
WYOMING																																
Casper	5346	835.1	1012.6	59	34	46.2	-8.2	80	22	20	5	0	14	31	62	1.97	-.23	.76	13	5	23.9	12	11.1	SW	--	---	--	8	7	16	6.4	--
Cheyenne	6139	809.0	1012.6	58	34	46.2	-4.1	80	23	23	4	0	15	31	62	2.48	+.05	1.24	13	6	12.4	6	11.9	WNW	43	NW	5	3	17	11	6.2	70
Lander	5563	827.3	1013.9	58	33	45.9	-5.3	76	22	19	5	0	16	29	55	3.41	+1.15	1.23	10	3	17.7	8	7.7	---	47	S	17	9	13	9	5.6	65
Rock Springs	6741	792.1	1014.2	58	32	45.3	-5.9	76	22	18	4	0	19	27	56	1.72	+.75	.82	11	5	9.9	6	14.4	W	--	---	--	6	14	11	6.3	--
Sheridan	4021	882.8	1014.5	62	36	48.9	-3.1	84	22	18	1	0	10	33	60	1.51	-1.14	.42	12	1	5.1	2	10.2	NW	45	NW	5	8	11	12	6.2	65
PACIFIC AREA																																
Canton Island	12	1009.5	1010.1	88	78	83.1	----	93	30	75	5	8	0	72	75	.44	------	.23	4	0	0	0	----	---	--	---	--	14	10	7	4.7	--
Hilo	26	1016.6	1018.0	80	65	72.3	----	83	10	62	7	0	0	65	82	15.90	------	5.94	26	2	0	0	5.1	SW	--	---	--	1	8	22	8.0	--
Honolulu	12	1018.0	1018.4	79	71	74.9	+.1	83	30	69	23	0	0	63	67	.55	-1.19	.22	15	0	0	0	13.3	ENE	31	E	1	11	12	8	5.2	71
Lihue	115	1013.5	1018.9	79	69	74.1	----	82	29	65	31	0	0	66	77	1.64	------	.66	19	1	0	0	11.4	ENE	--	---	--	0	17	14	7.4	--
Wake Island	11	1015.6	1016.2	84	76	79.8	----	86	10	72	25	0	0	72	80	2.00	------	.57	16	0	0	0	13.1	F	--	---	--	6	12	13	6.4	--
PUERTO RICO																																
San Juan	9	1013.2	1015.1	83	73	77.6	-1.0	90	27	70	8	2	0	71	80	5.43	+.19	2.14	20	2	0	0	8.3	ENE	26	E	3	1	17	13	6.9	43
ALASKA																																
Anchorage	134	1004.4	1009.5	54	36	45.1	+.1	64	29	31	5	0	4	32	61	.10	-.40	.07	3	0	T	T	4.9	S	29	SW	19	1	5	25	8.8	36
Annette Island	110	1012.9	1016.9	50	40	45.0	-4.9	56	2	36	17	0	0	40	82	8.15	+3.55	1.53	20	0	0	0	9.6	SE	--	---	--	0	4	27	9.2	--
Barrow	22	1012.9	1013.2	25	16	20.1	+.7	35	12	0	2	0	31	17	86	.23	+.09	.10	5	0	2.3	23	12.2	ENE	31	SW	31	0	4	27	9.1	--
Bethel	21	1005.8	1007.1	47	30	38.2	-1.8	60	27	13	2	0	19	32	80	.70	-.18	.21	13	0	0.6	T	8.6	W	30†	E	23	3	6	22	7.7	--
Cordova	40	1009.5	1011.5	48	36	41.6	-1.8	63	16	28	21	0	6	37	84	9.92	+2.78	2.01	23	0	T	0	6.1	ESE	31†	ESE	24	1	1	29	9.6	--
Fairbanks	436	989.8	1006.8	59	35	47.4	+.4	73	30	29	5	1	11	35	65	.52	-.15	.30	7	0	T	T	7.2	E	35	SW	30	4	9	18	7.3	42
Galena	120	1001.7	1006.4	52	34	42.7	+.5	67	17	15	4	0	8	29	61	.12	-.97	.06	2	2	T	8	8.7	N	--	---	--	3	11	17	7.0	--
Gambell	25	1008.5	1009.5	30	24	26.9	-2.4	35	16	11	2	0	31	25	92	.63	+.02	.19	12	0	5.7	47	15.5	NNE	34	SW	30	0	4	27	9.1	--
Juneau	15	1014.0	1014.9	52	38	44.8	-2.0	64	29	29	16	0	5	37	77	3.38	+.43	.45	19	0	0	0	----	E	34	SE	11	2	1	28	8.8	23
Kotzebue	10	1008.5	1009.1	35	22	28.4	-1.2	52	17	-6	3	0	31	25	86	.26	-.08	.10	9	0	1.2	13	12.8	W	--	---	--	4	8	19	7.3	--
McGrath	334	993.9	1006.8	55	33	44.0	+.7	71	30	20	5	1	15	31	63	.52	-.46	.22	7	0	T	4	6.2	ENE	--	---	--	2	9	20	7.4	--
Nome	13	1007.5	1008.1	40	27	33.5	-.6	57	18	7	1	0	22	29	82	.53	-.11	.22	8	0	T	8	8.9	SW	68	NE	24	8	5	18	6.7	--
Northway	1713	945.1	1008.1	56	33	44.2	-1.1	66	31	24	1	0	16	31	68	.99	+.26	.24	12	1	1.8	2	----	NW	--	---	--	1	3	27	8.5	--
St. Paul Island	22	1006.4	1007.5	39	30	34.5	-.5	44	19	19	2	0	22	32	87	1.50	+.06	----	19	0	1.1	T	----	---	--	---	--	0	5	26	9.1	--
Umiat	337	1001.4	1014.6	31	20	25.5	+4.1	53	30	1	1	0	31	17	88	.14	+.04	.06	5	0	0.9	13	7.9	E	--	---	--	1	11	19	8.1	--
Wales	8	1011.2	1011.9	29	21	24.7	-2.0	35	13	1	4	0	31	22	89	.38	-.11	.22	8	0	3.9	28	19.6	NE	43*	S	29	4	3	24	8.2	--
Yakutat	28	1012.8	1014.0	47	36	41.9	-1.9	64	16	29	15	0	7	39	90	12.45	+4.78	2.77	21	0	0	T	10.0	ESE	--	---	--	1	5	25	8.9	--

*Note: No. of days Max. 70°F. or above for Alaskan Stations

† Data entered in column headed "Fastest mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

HEATING DEGREE DAYS

(BASE 65°)

Table 3

MAY 1950

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Birmingham (AP)	11	2239	2610
Mobile	0	1106	1566
Mobile (AP)	0	1266	
Montgomery	0	1544	2071
Montgomery (AP)	0	1728	
ARIZONA			
Flagstaff (AP)	501	6521	7051
Phoenix	5	1124	1441
Phoenix (AP)	4	1301	
Tucson (AP)	21	1434	
Winslow (AP)	143	4385	
Yuma (AP)	2	851	1036
ARKANSAS			
Ft. Smith (AP)	12	3108	3225
Little Rock (AP)	18	2711	3008
Texarkana	3	2126	
CALIFORNIA			
Bakersfield (AP)	50	2094	
Blue Canyon	347	5255	
Burbank (AP)	116	1726	
Eureka	469	4714	4451
Fresno (AP)	72	2610	2399
Los Angeles	98	1470	1364
Los Angeles (AP)	155	1999	
Mt. Shasta	310	5701	
Oakland (AP)	236	3140	
Red Bluff (AP)	80	2820	2644
Sacramento	95	2604	2659
Sacramento (AP)	116	2938	
Sandberg	269	3980	
San Diego (AP)	111	1552	1547
San Francisco	316	3196	2940
San Francisco (AP)	287	3470	
San Jose	150	2521	
Santa Maria (AP)	280	3023	
COLORADO			
Denver (AP)	369	5625	5775
Grand Junction (AP)	196	5619	
Pueblo (AP)	217	5044	5529
CONNECTICUT			
Bridgeport (AP)	305	5553	
Hartford (AP)	236	5958	6066
New Haven (AP)	309	5698	5833
DELAWARE			
Wilmington (AP)	163	4793	
DIST. OF COLUMBIA			
Washington	74	3804	4547
Washington (AP)	78	3860	
FLORIDA			
Apalachicola	0	841	1252
Daytona Beach (AP)	0	612	
Fort Myers	0	201	
Jacksonville	0	736	1185
Jacksonville (AP)	0	849	
Key West	0	7	59
Key West (AP)	0	16	
Melbourne (AP)	0	312	
Miami	0	101	185
Miami Beach *	0	34	
Int. Airport, Hialeah	0	83	
Orlando (AP)	0	372	
Pensacola	0	983	1281
Tallahassee (AP)	0	1001	
Tampa (AP)	0	330	571
West Palm Beach (AP)	0	90	
GEORGIA			
Atlanta	8	2545	2983
Atlanta (AP)	7	2455	
Athens (AP)	5	2714	
Augusta (AP)	3	1853	2305
Columbus	1	1914	
Macon (AP)	2	1788	
Savannah (AP)	0	1333	1635
Valdosta (AP)	0	1163	
IDAHO			
Boise (AP)	333	6009	5586
Lewiston (AP)	280	6051	
Pocatello (AP)	398	6880	6576
ILLINOIS			
Cairo	32	3497	3953
Chicago	231	5880	6215
Chicago (AP)	174	6248	
Chicago University	237	6074	
Moline (AP)	129	6330	
Peoria (AP)	97	5912	5976
Springfield	50	5001	5430
Springfield (AP)	75	5454	
INDIANA			
Indianapolis (AP)	92	5277	
Evansville (AP)	58	4242	4404
Ft. Wayne (AP)	142	6058	6191
Indianapolis	70	4930	5436
South Bend (AP)	185	6366	
Terre Haute (AP)	65	5089	
IOWA			
Burlington (AP)	115	6089	
Charles City	216	7645	7562
Davenport	114	6125	6223
Des Moines	139	6456	6346
IOWA (Cont'd.)			
Des Moines (AP)	155	6620	
Dubuque	159	6796	6779
Keokuk	81	5700	5645
Sioux City (AP)	231	7283	6865
KANSAS			
Concordia	106	5342	5407
Dodge City (AP)	137	4853	5049
Goodland (AP)	306	5934	
Topeka	57	4875	5062
Topeka (AP)	63	5098	
Wichita (AP)	74	4509	4635
KENTUCKY			
Lexington (AP)	74	4332	4778
Louisville	47	3993	4409
Louisville (AP)	59	4020	
Pikeville	23	2992	
LOUISIANA			
Baton Rouge (AP)	0	1162	1508
Lake Charles (AP)	0	1030	
New Orleans	0	775	1203
New Orleans (AP)	0	838	
Int.Airport Moisant	0	921	
Shreveport (AP)	0	1807	2132
MAINE			
Caribou (AP)	386	9472	
Eastport	485	7542	8144
Greenville	420	9323	9245
Portland	371	7397	7241
MARYLAND			
Baltimore	102	3921	4475
Baltimore (AP)	107	4123	
Bethesda *	97	4340	
Dist. Heights *	90	4087	
Frederick	95	4223	
Riverdale *	106	4257	
Takoma Park *	97	4167	4822
MASSACHUSETTS			
Boston (AP)	280	5547	5870
Nantucket (AP)	443	5644	5754
Pittsfield (AP)	352	7361	
Milton	352	6323	
MICHIGAN			
Alpena	444	7906	8110
Detroit (AP)	211	6287	6504
Escanaba	491	8600	8607
Grand Rapids	178	6361	6645
Grand Rapids (AP)	224	6785	
Iron Mountain *	416	8931	
Lansing (AP)	229	6867	
Marquette	505	8621	8525
Muskegon (AP)	296	6922	
Sault Ste.Marie (AP)	507	9321	9092
Traverse City (AP)	391	7787	
Ypsilanti (AP)	189	6365	
MINNESOTA			
Duluth	590	9822	9489
Duluth (AP)	583	10391	
International Falls	538	11189	
Minneapolis (AP)	287	8362	
St. Cloud (AP)	403	9416	8774
St. Paul (AP)	283	8357	
MISSISSIPPI			
Jackson (AP)	0	1729	
Meridian (AP)	0	1877	2329
Vicksburg	0	1666	2069
MISSOURI			
Columbia	51	4688	5056
Columbia (AP)	61	4968	
Kansas City (AP)	38	4738	4950
St. Joseph (AP)	61	5371	
St. Louis	41	4258	4588
St. Louis (AP)	54	4444	
Springfield (AP)	66	4440	4557
MONTANA			
Billings (AP)	463	7694	7107
Butte (AP)	692	9504	
Glasgow	391	9882	
Great Falls (AP)	435	8145	
Havre	371	9286	8283
Helena	506	8554	7738
Kalispell	487	8563	7812
Miles City (AP)			7510
Missoula (AP)	500	8052	7425
NEBRASKA			
Grand Island (AP)	235	6522	
Lincoln	153	6013	5955
Lincoln (AP)	172	6288	
Norfolk (AP)	271	7276	
No. Platte (AP)	291	6641	
Omaha (AP)	142	6291	6071
Valentine	366	7576	7123
NEVADA			
Ely (AP)	542	7392	
Reno (AP)	338	5849	5528
Tonopah			5730
Winnemucca (AP)	386	6317	6243
Las Vegas	35	2445	2619
NEW HAMPSHIRE			
Concord (AP)	289	7327	7300
NEW HAMPSHIRE (Cont'd)			
Mt. Washington	926	13204	
NEW JERSEY			
Atlantic City	266	4447	4978
Newark (AP)	198	4941	5471
Trenton	176	4835	5231
NEW MEXICO			
Albuquerque (AP)	50	3852	4512
Clayton (AP)	177	4657	
Roswell (AP)	20	3123	3576
NEW YORK			
Albany (AP)	238	6846	
Bear Mountain	296	6695	
Binghamton	227	6293	6744
Binghamton (AP)	256	6655	
Buffalo (AP)	250	6451	6835
Canton	301	7802	8198
New York	204	4643	5250
International Airport	236	4951	
La Guardia Field	201	5162	
Oswego	301	6618	
Rochester (AP)	253	6610	6701
Schenectady	261	6962	
Syracuse (AP)	228	6567	6823
NORTH CAROLINA			
Asheville	25	3575	4221
Asheville (AP)	32	3829	
Charlotte	9	2699	3220
Charlotte (AP)	12	2885	
Greensboro (AP)	29	3472	
Hatteras	22	1891	2553
Raleigh	28	2713	3269
Raleigh (AP)	37	3041	
Wilmington	19	1924	2419
Winston-Salem (AP)	27	3362	
NORTH DAKOTA			
Bismarck (AP)	435	10086	8828
Devils Lake	509	10981	9959
Fargo (AP)	437	10138	
Grand Forks	484	10827	9748
Pembina (AP)			
Williston	443	10073	9171
OHIO			
Akron (AP)	205	6144	
Cincinnati	56	4150	4974
Cincinnati (AP)	87	4777	
Cleveland	203	5519	6088
Cleveland (AP)	174	5755	
Columbus	94	4962	5481
Columbus (AP)	109	5201	
Dayton (AP)	120	5398	5389
Sandusky	174	5490	6053
Toledo (AP)	194	6123	6222
Youngstown (AP)	211	6105	
OKLAHOMA			
Oklahoma City	42	3319	3667
Oklahoma City (AP)	39	3444	
Tulsa (AP)	39	3524	
OREGON			
Baker	484	7200	6980
Baker (AP)	478	7635	
Burns	434	7266	
Eugene (AP)	304	5083	
Meacham	597	7948	
Medford (AP)	230	4871	4576
OREGON			
Pendleton (AP)	274	5913	
Portland	259	4598	4245
Portland (AP)	319	5187	
Roseburg	262	4331	4221
Salem (AP)	296	5059	
Troutdale	317	5217	
PENNSYLVANIA			
Allentown (AP)	199	5615	
Curwensville	276	7086	
Erie	234	5784	6295
Harrisburg (AP)	140	5117	5389
Park Place	295	6723	
Philadelphia	148	4348	4722
Philadelphia (AP)	144	4543	
Pittsburgh	98	4820	5322
Reading	156	4845	5209
Scranton	181	5801	6167
Williamsport (AP)	169	5879	5995
Pittsburgh (AP)	118	5214	5633
RHODE ISLAND			
Block Island	422	5308	5789
Providence	252	5447	5924
Providence (AP)	309	5834	
SOUTH CAROLINA			
Charleston	0	1394	1866
Charleston (AP)	1	1652	
Columbia	3	2057	2487
Columbia (AP)	2	2167	
Greenville (AP)	7	2859	3058
Spartanburg	9	2840	
SOUTH DAKOTA			
Huron (AP)	349	8580	7870
Pierre (AP)	365	8364	7231
Rapid City (AP)	449	7840	7088
Sioux Falls (AP)	331	8297	
TENNESSEE			
Bristol (AP)	21	3716	
Chattanooga	0	2464	
Chattanooga (AP)	0	2872	3237
Knoxville (AP)	3	3128	3655
Memphis (AP)	4	2838	3089
Nashville (AP)	8	3310	3610
TEXAS			
Abilene (AP)	18	2207	2572
Amarillo (AP)	74	3719	4185
Austin (AP)	0	1398	1679
Big Spring (AP)	19	2206	
Brownsville (AP)	0	271	628
Corpus Christi (AP)	0	502	965
Dallas (AP)	2	2078	2367
Del Rio	0	929	1501
El Paso (AP)	7	2143	2631
Ft. Worth (AP)	4	2113	2354
Galveston	0	655	1174
Galveston (AP)	0	647	
Houston	0	852	
Houston (AP)	0	905	1315
Laredo	0	494	
Lubbock	44	3184	
Palestine	0	1630	2068
Port Arthur	0	847	1352
Port Arthur (AP)	0	1061	
San Angelo (AP)	8	1928	
San Antonio (AP)	0	1153	1435
Wichita Falls (AP)	19	2621	
Waco (AP)	1	1758	
UTAH			
Milford	336	6338	
Salt Lake City	303	5356	5591
Salt Lake City (AP)	334	5831	6049
VERMONT			
Burlington (AP)			7945
VIRGINIA			
Alex. Epis. H.S.*	66	3837	
Cape Henry	109	2895	3532
Falls Church *	82	3983	
Lynchburg (AP)	71	3840	4056
Norfolk	62	2736	3359
Norfolk (AP)	82	3011	
Potomac Yards	49	3505	
Richmond	66	3313	3914
Richmond (AP)	85	3567	
Roanoke (AP)	69	3863	
Urbanna	97	3456	
WASHINGTON			
Ellensburg (AP)	373	7473	
Kelso	397	5615	
North Head	491	5395	5056
Olympia (AP)	423	5928	
Port Angeles	474	6145	
Seattle	332	4915	4655
Seattle (AP)	333	5169	
Spokane (AP)	390	7378	6200
Stevenson	336	5793	
Tacoma	372	5274	4868
Tatoosh Island	528	6089	5507
Walla Walla	206	5421	4854
Yakima (AP)	259	6504	5525
Stampede Pass	813	9750	
WEST VIRGINIA			
Elkins (AP)	185	5395	5742
Huntington (AP)	35	3640	
Parkersburg	80	4430	4910
WISCONSIN			
Green Bay	380	8335	7840
La Crosse	199	7389	7369
La Crosse (AP)	245	8068	
Madison	226	7292	7339
Madison (AP)	229	7438	
Milwaukee	369	7040	6977
Milwaukee (AP)	349	7100	
WYOMING			
Casper (AP)	575	7634	
Cheyenne (AP)	575	7164	7371
Lander (AP)	586	7721	8088
Rock Springs	531	7689	
Rock Springs (AP)	604	8264	
Sheridan (AP)	496	7998	
ALASKA			
Anchorage (AP)	608	11070	
Annette Island (AP)	616	7545	
Barrow	1386	18022	
Bethel (AP)	820	12117	
Cordova (AP)	719	9945	
Fairbanks (AP)	538	13642	
Galena (AP)	685	13995	
Gambell			
Juneau (AP)	620	9384	
Kotzebue (AP)	1129	14420	
McGrath (AP)	843	13722	
Northway (AP)	639	15250	
St.Paul Island (AP)	935	9968	
Yakutat (AP)	716	9522	
Nome (AP)	970	12939	

Table 4 — MAY 195(

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Robeline, Natchitoches Parish, La.	1	1 a.m.	100	2	0	0	$50,000	$25,000	Tornado	Crops, timber, communication and power lines, home and farm buildings destroyed.
Winn Parish, La.	1	10:30 a.m.	100-200	11	0	0	50,000	15,000	do	Developed about 2 miles north of Winnfield and mov northeastward skipping places until dissipated in swamp vicinity of Chester; destroyed buildings an crops. Thunderstorms continued all day and into night.
Cloutierville, Natchitoches Parish, La.	1	11:25 a.m.	100	3	0	7	75,000	10,000	do	School demolished, injuring seven students; other buildings, timber, and crops destroyed.
Concordia Parish, La.	1	11:30 a.m.			0	2	44,000	5,000	do	
LaSalle Parish, La.	1	11:30 a.m.			0	0	8,000	5,000	do	
Lamar County, Miss.	1	Early a.m.					5,000	Slight	Wind	
Jefferson County, Miss.	1	Early a.m.			0	0	30,000	5,000	Tornado	
Natchez (near), Miss.	1	Early a.m.			0	0	10,000		do	Only high winds in Natchez.
Long Valley in Mono County, Owens Valley in Inyo County, and eastern Sierra Nevadas, Calif.	1	3:30 - 7:00 p.m.	†100			4	75,000		Winds	Strong winds associated with a cold front passage caused damage over length of Owens and Long Valleys. Principal damage confined to dwellings, telephone lines, and power lines, resulting from falling trees. Dock and many boats damaged on Crowley Lake. Many cars damaged by blowing sand. Several airplanes damaged at Bishop Airport. Fire started by broken power lines burned unknown acreages.
Love and Marshall Counties, Okla.	1	5:30 - 6:45 p.m.	†1	15			70,000	9,500	Hail	From west of Enville to beyond Kingston. Hail size from moth balls to golf balls; some as large as lemons.
Montana, south-central and eastern third.	1-4								Rain and snow	Cold rains and heavy snows caused lamb losses up to 50 percent on one ranch, and 10 to 25 percent loss for area. Calf losses unusually large. One rancher in Carter County reported 3,000 lambs lost and 40 calves for his area.
Montana, east and north slopes of south-central mountains.	1-4								Snows	Heavy snows blocked roads and damaged power and telephone lines. Snow depth 30 inches at Unionville on 3d.
Henderson, Rusk County, Texas	2	12:01 a.m.	300	15		1		5,000	Wind and hail	Hail light. Trees uprooted.
Grant and Winn Parishes, La.	2	2 a.m.	150	25	0	1	70,000	10,000	Tornado	Developed in Grant Parish and moved through Winn Parish on path south of one a few hours earlier; moved through Wheeling and Atlanta and south of Winnfield to just west of Hickory Valley. No damage in some places, very destructive in others along path.
Catahoula Parish, La.	2	3 a.m.	100		1	5	153,000	Slight	do	Sixteen homes destroyed, 55 damaged; 14 other buildings destroyed and 18 damaged. Path short.
Rome, Ga.	2	5 p.m.					10,000		Wind, rain and electrical	High winds, estimated at 65 m.p.h., blew down trees power and telephone lines out of commission for several hours. Several streets flooded from heavy rainfall. Some buildings suffered minor damages from lightning.
Columbia, S.C.	2	Night				1			Electrical	One severe injury.
Hinds County, Miss.	2						17,000	Slight	Wind	
Richmond, Va.	3	3 a.m.					3,000		Electrical	Lightning set fire to water tower and garage in Maymont Park.
Ames, Story County, Ia.	3	11 p.m.					3,500		Wind, rain and electrical	A driving rainstorm with strong, gusty winds struck eastern Boone and western Story Counties, with western edge of Ames reporting the most damage. A number of signs and small buildings blown down, a drive-in theater damaged, and several trees uprooted. One house struck by lightning.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Wyoming, eastern and southern portions.	3-4								Snow	Severe losses of young livestock in some local areas, especially range lambers.
El Paso, Texas	4	9:50 a.m.				1	$15,000	$17,500	Wind and dust	Trees blown down, houses unroofed, and plate glass windows blown out. Worst dust storm since mid-thirties. Gusts up to 72 m.p.h.
New Mexico, entire State	4	All day							do	High winds with gusts exceeding 70 m.p.h. resulted in considerable blowing dust and sand. Some structural damage to buildings and signs, with severe sand blasting of automobile glass and finish. Fruits and tender truck severely damaged, and considerable cotton and beets blown out.
Wabaunsee County, Kans.	4	3:45-4:30 p.m.	†1 1/2	9			6,500		Wind and hail	Hail, ranging up to 1 1/2 inches in diameter, centered in Maple Hill with scattered falls across county. Minor wind damage to trees and roofs at McFarland not estimated.
Shawnee County, Kans.	4	5-5:15 p.m.		16			2,000		Hail	Occurred in Topeka westward along Kansas River. Hail ranged from size of peas to a scattering of jagged stones as large as 12 inches in circumference in Gage Park area. Greenhouse panes heavily damaged.
Buncombe County, N.C.	4	5-6 p.m.	†3	6			100,000	Minor	Wind and hail	Most damage by strong winds. Some hailstones estimated 4 to 5 inches in diameter.
Doniphan County, Kans.	4	6:30 p.m.	†10	10			Slight		Hail	Hailstones averaged 1/2 inch in diameter in eastern part of county.
La Grange, Ky.	4	8 p.m.							Wind and hail	Windows broken; roofs blown off; crops washed out in creek bottoms. Hailstones measured from 1/2 inch in diameter to golf ball size.
Perryton, Ochiltree County, Texas	4	8:30 p.m.	50	3	1	12	80,000		Tornado and hail	Light hail. Thirty-five homes destroyed. Storm moved northeastward.
Beaver County, Okla.	4	8:30-9:15 p.m.					3,000		Wind and hail	Storm moved northward. Hail 1 to 3 inches in diameter. Scattered damage to windmill towers and small buildings. Damage by wind $2,900, hail $100.
Tabor, Fremont County, Ia.	4	9 p.m.			0	0			Tornado	Struck 4 miles northwest of Tabor and caused damage on two farmsteads. Total damage not reported, but amount small.
Harmon County, Okla.	4	9-10 p.m.					500		Winds	Area for 10 miles in all directions around Vinson affected.
Ellis County, Okla.	4	9:30 p.m.					20,000		do	Property damaged on three farms southwest, one northwest, and two west of Shattuck.
Beckham County, Okla.	4	9:30-9:45 p.m.	880	5	0	0	8,300		Tornado	Accompanied by hail that caused no damage. Moved northeastward from a point 3 miles northwest to 6 miles north of Carter. Postmaster at Carter, stated--"Appeared to be several distinct funnels. This is exact location of storm on March 18, 1948".
Washita County, Okla.	4	9:30-10:20 p.m.	1000	4			22,250		Wind and hail	Damage in Lake Valley and Cordell communities. Path northeastward.
Custer County, Okla.	4	9:30 p.m.			0	0	5,000		Tornado	Farm 3 1/2 miles northwest of Stafford struck; several buildings destroyed.
Woodward County, Okla.	4	9:45 p.m.	100	1	0	0	78,000		do	Path northeastward through Fort Supply. One home demolished and five damaged. Several outbuildings damaged or destroyed.
Woodward County, Okla.	4	Evening					10,000		Winds	One barn damaged by high winds near Freedom and another southwest of Woodward.
St. Joseph, Mo.	4	Evening					Light	Light	Hail	One of worst to hit St. Joseph area. Minor damage to property in St. Joseph and more severe damage in surrounding territory.
Rush County, Kans.	4	Evening			0	0			Tornado	Small twister struck area north of Liebenthal. Two barns and two wind mills destroyed, with slight damage to two grain buildings and power and telephone lines.
Pawnee and Barton Counties, Kans.	4	11:10 p.m.	150	30	0	30	250,000	1,000	do	Sixty-six of 100 units rendered unliveable at Barton Courts, Federal Housing Project. Four miles west of Great Bend; 8 of 21 buildings leveled to ground. Rural property damage heaviest in southeastern Pawnee County, where path passed near Ray. Eleven houses blown down at Zook. Storm dissipated northwest of Great Bend.
Cass County (central portion), Mo.	5	Early morning	†30	50			7,000		Wind	Roofs, small buildings, and plate glass windows damaged; much of damage in rural areas.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Brown and Jackson Counties, Kans.	5	3:30 a.m.	440	15	0	12	$100,000		Tornado	Intermittent path from north of Whiting to south of Hiawatha. Two houses and 13 barns destroyed. Nine houses, eight barns, and numerous outbuildings damaged. Large trees snapped off at their base.
St. Joseph, Mo.	5	6:30 a.m. - 7 p.m.			1		200,000	Light	Wind	Damage to roofs, small buildings, windows, and trees
Shawnee County, Kans.	5	7 a.m.- 4 p.m.				4	15,000		do	Winds reached 70 m.p.h. in gusts at 7:30 and 8:24 a.m. Miscellaneous building damage. Visibility reduced to 2 miles by dust in early afternoon.
Pittsburgh, Pa.	5	6:30-8:45 a.m.				27	500,000		Electrical and rains	Lightning struck street car in downtown Pittsburgh and set it afire, resulting in injury to 22 passengers. A man and infant suffered burns as they dashed from their house which had been set afire by lightning. Woman injured when she ran into truck as she was crossing street in blinding rain while shielding her head with newspaper. Two Millvale store employees overcome by gas fumes escaping from a broken line day after storm. Lightning caused major damage to school in Millvale; also struck church, another street car, and several other homes and buildings. Eleven gas lines washed out in Hays and Brookline. Flash flooding hit hardest in areas around Millvale, Hays,and section along Saw Mill Run Boulevard and Route 51. Damage at Millvale $200,000. Water flooded almost 500 homes, ruining furnaces, furniture, and automobiles Three feet of water covered 8 blocks in part of Millvale's business district. Flash flooding washed out at least two foot bridges and concrete retaining wall. Pressure of water in sewers blew off manhole cover on Saw Mill Run Boulevard, and Washington Boulevard flooding adjacent areas. Many dirt streets washed out leaving deep impassable rut Pittsburgh Railway officials said traffic jam, due to mud, high water, and trash, was one of worst in years. WBO Airport Station reported 2.04 inches of rain in 2 hours time with 1.14 inches in 20 minutes Flash floods and land-slides blocked many main high ways and secondary roads into downtown Pittsburgh, especially those from northern communities.
Iowa,entire State	5	9 a.m. until midnight			3	22	5,000,000		Wind	An intense windstorm, with velocities of gale and hurricane force, lashed entire State for 10 to 20 hours. Wind speeds in gusts reached an official peak of 90 m.p.h. at Des Moines Airport at 1:31 p.m and unofficially up to 100 m.p.h. at other airport locations. Counties bordering Missouri River, particularly north of Sioux City, experienced winds of 20 to 30 m.p.h. less than rest of State. Most extensive destruction was close to 93d Meridian. One of the most destructive windstorms in history of State. Lowest barometer reading for any date in May at Des Moines and Charles City. Storm left a trail of broken glass, tangled telephone and power lines, unroofed buildings, toppled trees, and miscellaneous damage. Strong winds made highway travel hazardous. Number of insurance claims twice that of windstorm last October 10. Several companies reported loss claims would exceed anything experienced in their history. One company, operating mainly in rural areas, had already received over 44,000 claims totalling over $3,000,000. Another company, operating mainly in towns, had received over 17,000 claims.
Hopkins, Nodaway County, Mo.	5	10 a.m.- 7 p.m.					50,000	Light	do	Damage to small structures, roof tops, trees, and windows.
Coffey County, Kans.	5	4 p.m.	†2 1/2	20			3,500		do	Passed over Burlington. Scattered damage to rural buildings and from soil erosion.
Towanda, Pa.	5	5 p.m.							Electrical	Lightning struck large dairy barn at Spring Hill; resulting fire destroyed 28 head of cattle, team of horses, hay, grain, and much farming equipment; also, burned adjoining milk house.
Nebraska	5	All day	†700	900			*Several thousand	*	Wind	General windstorm around deep low pressure. Much interruption of communication service from winds of almost 70 m.p.h. over State; plate glass windows broken in some places. With driving snow storm took on character of blizzard in western Nebraska, except that temperature only slightly below freezing. Traffic halted in west and central.
Kansas,eastern two-thirds	5	Day			1				do	Gale winds,reaching 60 to 70 m.p.h. in gusts over eastern third of State, caused miscellaneous property losses. Trees suffered heavily in local areas. Winds as high as 50 m.p.h. extended westward over central portion of State. Numerous injuries occurred,with one fatality caused by gusty winds blowing an employee of power company at Kingman against a"live"wire.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
South Dakota	5	Daytime							Snow and wind	Snow with some rain moved eastward across State. The added wind of 40 to 50 m.p.h. made driving hazardous from poor visibility and snow accumulation. Most sections had 7 to 8 inches of snow with maximum of 17 inches in north-central to 1 inch in southeast. Temperatures raised as night fell and rain continued. By following morning a great portion of snow gone. Considerable damage to wires and poles.
Illinois, northern and central portions	5	Afternoon			2	5	*$400,000	*	Wind	Sustained winds of over 60 m.p.h., with gusts to 80 m.p.h. reported in some sections. Damage widespread but mostly minor, except in northwest and in some west-central and northeastern localities. Heaviest property losses in Rock Island-Moline area where extensive roof and wire damage. Many trees downed, and a number of store windows knocked out in several communities. At Jacksonville a radio tower toppled, and at Beardstown a bridge damaged. Blowing dust greatly reduced visibility in many areas, causing two deaths in traffic accident near Rockford. Little crop damage.
Columbia, Mo.	5						1,000		do	Damage to store windows, roof tops, and trees.
Carrollton, Mo.	5						Thousands		do	Damage to small farm buildings, roofs, trees, and windows.
St. Louis, Mo.	5						5,000		do	One hundred and twenty-five steel towers blown over, and several building cornices blown loose.
Brookfield, Mo.	5						Heavy		do	Heavy damage to buildings, windows, and trees.
Boonville, Mo.	5						Considerable		do	Damage to trees, windows, and radio aerials.
Kansas City, Mo.	5					2			do	Roofs damaged, trees toppled, and shop windows blown out. Woman injured when blown to pavement. Workman blown from viaduct span.
Missouri, northern portion	5						Heavy	Light	do	An intense low-pressure system, passing north-northeastward near northwest corner of State, caused extensive damage to small structures, roof tops, signs, plate glass windows, and trees in most sections north of Missouri River. Several minor injuries from falls and wind-blown debris. Most individual cases of damage small, but aggregate damage extremely heavy. Some slight damage to topsoil.
Hesperia, Mich.	5-6	8 a.m., 5th -4 p.m., 6th					1,000	$500	do	High winds damaged roofs, blew down trees, and chimneys, and blew out some seeded crops.
Lowell, Mich.	5-6	11 a.m., 5th-7p.m. 6th					4,000	1,000	do	Wind damaged power and telephone lines, roofs, and planted fields.
McBrides, Mich.	5-6	Noon 5th-7 p.m., 6th					1,000		do	Wind blew down small buildings and broke windows.
Wisconsin	5-6	Noon, 5th-late afternoon 6th			3		*"Millions"	*	do	Most severe in climatological history of Wisconsin, considering area covered, length of time gale winds prevailed, wind velocities, and amount of property damage. Southwesterly gales, reached peak velocities between 4 p.m. and midnight of 5th. Speeds of 60 m.p.h., with gusts of 70 m.p.h. to over 90 m.p.h. throughout State. Severe thunderstorms locally in northwest afternoon of 5th. Probably every community suffered some damage. Over 75 percent of insurance claims for damage to composition shingle roofs. Many broken windows and doors, and damage to small frame buildings. Many broken poles and wires. Two large television towers and roller-coaster at amusement park blown down in Milwaukee. Large outdoor theatre screen demolished at Fond du Lac. Two large ore-dock rigs, roundhouse, and large warehouse demolished at Superior. Soil-blowing in dry areas and new seedings blown away.
Grayling, Mich.	5-6	3 p.m.-5 a.m.					2,000		do	Wind damaged trees, roofs, and utility lines.
Iron Mountain and Dickinson County, Mich.	5-6	3 p.m., 5th-5 a.m. 6th					30,000		do	Wind damaged roofs, blew down trees and chimneys, and broke plate glass windows and signs.
Lansing and bordering counties, Mich.	5-6	Afternoons					100,000	5,000	do	Wind damaged roofs, blew down trees and signs, and broke windows. Newly-planted onions blown out. Soil erosion great.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Cheboygan, Mich.	5-6	8 p.m., 5th - 6 p.m., 6th					$2,000		Wind	Smokestack, power lines, signs, and windows destroyed or damaged. Stacked lumber scattered.
Bergland, Gogebic Lake to Ironwood and Copper Range, Mich.	5-7	Night 5th-noon 7th					30,000		Wind, hail, rain, sleet, and electrical	Lumber scattered in mill yards. Barns blown down. Hail size of peas. Damage was by wind.
Alpena, Mich.	5-6						5,000		Wind	High winds and resulting high waves caused some damage on Hubbard Lake. Some barns and power lines blown down.
Minnesota, southern and eastern counties	5-6					7	750,000		Line squalls, electrical, and rain	Widespread but mostly minor damage to homes, schools, churches, garages, business buildings, drive-in-theatres, farm buildings and machinery, automobiles, communication and power lines, and signs. Hundreds of trees uprooted. Many barns and outbuildings demolished. Peak gusts of wind up to 88 m.p.h. at Duluth Airport. Much damage to heavily constructed structures in Duluth-Superior and vicinity where greatest destruction occurred in Superior, Wisconsin dock area. Navigation on Lake Superior impeded. A number of automobiles, hangars, and airplanes on ground wrecked. A number of livestock and much poultry perished. Heavy rains accompanied storm and caused considerable additional damage. Some streams overflowed their banks. No damage to crops because of unusual backwardness of season. Some damage by lightning. Unusually low barometric pressure attended passage of storm. Tornadic winds reported from Kanabec County. Storm moved north-northwestward in Duluth area.
Surry County, N.C.	6, 12, 18 and 26	1-5 p.m.						$682	Hail, winds, and electrical	Hail general over all of county. Considerable damage to power and communication facilities on 18th. Lightning struck house on 26th, burning it to ground.
Wilkes County, N.C.	6, 14, and 26	After-noons						45,000	Hail	Area of damage 10 square miles.
New England, entire section	7	10 a.m. to sunset			3		150,000		West-northwest gales and fire	The 3 fatalities result of many small boat upsets in inland waters. Winds of 50 to 65 m.p.h. general. Tree, sign, roof, window and wire damage in the aggregate considerable. Extremely low humidity and hot sunshine combined with gales to produce greatest fire hazard since holocausts of Oct. 1947. Over 200 forest and brush fires destroyed much timber and numerous dwellings in path of flames, most serious being Hotel Franconia, Lincoln, N.H. In Connecticut Valley, onion and tobacco fields and plowed ground suffered serious wind erosion of dry topsoil and fertilizer.
Hyde County, N.C.	7 and 12	3 p.m. on 7th-4 p.m. on 12th						1,200	Hail	Area of damage 5 square miles each day.
Beaufort County, N.C.	7 and 30	1 to 3p.m. on 7th, 3:30 p.m. on 30th						5,000	do	
Tyrrell County, N.C.	7, 25, and 30	After-noons						5,450	do	Area of damage 14 square miles.
Ellis County, Okla.	7	6:30-7:30 p.m.	†5		0	0	500	100	Tornado, hail, and winds	Shattuck, Gage, Fargo, and surrounding areas affected. Path of wind and hail 5 miles wide. Path of tornado narrow. Light damage by hail to crops, slight damage by wind to rural homes and outbuildings. No damage by tornado as it moved over open country. CAA observer at Gage observed tornado consisting of one large funnel, and three smaller funnels about 1 1/2 to 2 miles west of Gage Airport. They moved southeastward from point of origin, then apparently veered east-northeastward.
Garfield County, Okla.	7	9 p.m.-about midnight					35,000	15,000	Winds	High wind over entire county with $30,000 damage to buildings; $15,000 damage to wheat crop by hail; and $5,000 damage by heavy rains washing out railroad tracks, roads, and bridges.
Major County, Okla.	7	9:30 p.m.	†1	2			15,000	10,000	Wind and hail	In and near Fairview. Wind damage $15,000 to buildings; hail damage $10,000 to crops.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Kingfisher County, Okla.	7	11 p.m.	†1	4	0	3	$25,000	$5,000	Tornado and hail	Path of tornado and hail about 1 mile wide and 4 miles long, east of Hennessey. Two farmsteads demolished; several others damaged. About $25,000 damage to buildings by tornado and $5,000 damage to wheat crop by hail included in totals.
Payne County, Okla.	7-8	11 p.m.-2 a.m.	†3	6	0	0	3,000	8,000	do	Hail area 3 miles by 6 miles. $8,000 damage to wheat and oat crops by hail and $3,000 damage to farm buildings by tornado, included in totals.
Wyoming, northeastern portion	7-8								Snow	Some losses of young livestock.
Hutchinson to Miner Counties, S. Dak.	8	3-4 a.m.		20			10,000		Wind	Winds of near tornadic proportions moved northeastward from Parkston to Howard, destroying a small building, wind mills, plate glass windows; airport at Parkston suffered damage to hangar and one airplane.
Kearney County (Axtell to east of Heartwell), Nebr.	8	7 a.m.	†1	25				25,000	Hail	
Conrad (2 miles north of DeLeon Springs), Volusia County, Fla.	8	2 p.m.	30	1/4	0	0	1,000		Possible tornado	Downed telephone lines and damaged roofs of several buildings. Storm moved northeastward and lasted only a few minutes.
Trego County, Kans.	8	4:45-5:30 p.m.	†3	12		2	20,900	60,000	Wind and hail	Total loss of wheat in small area 3 miles south of Wakeeney with roof and window damage from hail in city. Wind damage at Cedar Bluff Damsite to trailer houses was $5,900.
Mitchell County, Kans.	8	6:30-7p.m.	660	12	0	0	65,000		Tornado	Rural property damage centered 6 miles south of Cawker City.
Jewell County, Kans.	8	7 p.m.		7	0	1	8,000		do	Intermittent northeasterly path began 10 miles southwest of Jewell. Damages to buildings and stored grain on two farms.
Red Oak, Montgomery County, Ia.	8	7:20 p.m.			0	0	28,000		do	Small tornado struck Red Oak Municipal Airport and completely destroyed an old hangar, one small storage building, and damaged a new hangar. Of 14 planes on field, 4 demolished, 8 sustained varying degrees of damage, and only 2 escaped completely. Direction of path erratic and indeterminate.
Osborne County, Kans.	8	7:30 p.m.	440	20	0	2	11,000	4,000	do	Property and crop losses from northeast of Natoma and south of Covert eastward in county.
Cloud County, Kans.	8	9:17 p.m.			0	1	22,750		do	Damaged or destroyed several farm homes in section about 11 miles south of Concordia and in vicinity of Aurora.
Auburn, Nemaha County, Nebr.	8	10 p.m.	1000	1	0	0	40,000		do	Damaged buildings, trees, and automobiles. Uprooted several trees.
Republic County, Kans.	8	Night			0	0			do	Rural property losses near Norway and Rydel.
Otoe and Cass Counties across Lancaster County to Saline County, Nebr.	8-9	4 p.m., 8th to 9th	†20	50	23		*Several millions	*	Torrential rains	Rainfall of 6 to 14 inches caused flash floods in Salt Creek, Big and Little Nemaha, and the Big Blue Rivers principally. Great soil loss, and loss to wheat and alfalfa. Towns and cities flooded with large resulting losses. All of the deaths but two resulted from motorists caught on highways by overflowing streams.
Riley County, Kans.	9	12:01 a.m.			0	0	6,000		Tornado	Small tornado dipped to ground in Manhattan at Kansas State College power house. Two residences damaged.
Pontotoc County, Okla.	9	8:20-8:40 p.m.	200	3/4	0	0	3,050		do	Farm struck 7 miles west of Ada. Storm moved to southeastward. Family came out of newly-completed storm cellar to find farm home and outbuildings blown away.
Louisville and Jefferson County, Ky.	9-10								Rain	Nearly 4 inches of rain flooded basements, disrupted telephone service, and badly damaged garden crops. Damage to county roads alone estimated at $50,000.
Lamesa, Dawson County, Texas	10	1:15 p.m.	†5	20			50,000		Wind and hail	Hail damage, $2,500; wind damage, $47,500. Damage to roofs and telephone poles. One house demolished.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Danville Airport, Va.	10	Early afternoon				1	$5,000		Wind	Airplane valued at $2,600 demolished. One end blown out of cinder block hangar and roof damaged. CAA radio antenna damaged. Storm lasted only a few minutes.
Robertson, Wyo.	10				0	0			Tornado	Slight damage to ranch buildings.
Beaver County, Okla.	11	6:30 p.m.	75	1/2	0	0	500		do	Struck business section of Beaver City, blowing out windows and otherwise damaging them. Path northeastward.
Forsythe County, N.C.	12	2 p.m.					2,000	$15,000	Wind and hail	Area of hail damage about 70 square miles. Hailstones as large as baseballs. Damage to Rural Hall School about $2,000, with 600 window panes smashed.
Pitt County, N.C.	12	3 p.m.		2	0	0	6,000	5,000	Tornado and hail	Area of hail damage about 5 square miles
Bertie County, N.C.	12	4 p.m.	†1	6			1,000	15,000	Hail	
Roswell and vicinity, N. Mex.	12	4:30 p.m.					50,000	25,000	do	
Wendell (6 miles southwest of), Wake County, N.C.	12	6 p.m.	400	2	0	0			Tornadoes	Evidence indicates two small twisters traveled a distance of about a mile before they appeared to meet and disappear. The larger one moved southeastward and the other southwestward. Considerable damage to crops and small buildings in their paths.
Cambridge to Orleans, Nebr.	12			40					Hail	Some wheat east of Beaver City to Orleans ruined.
St. Albans and vicinity, W. Va.	12-13	Night and early morning					100,000		"Chemical Fog"	Dense valley fog reportedly mixed with sulphur fumes did much damage to paint of buildings painted white.
Robeline, Natchitoches Parish, La.	13	5 a.m.	900	5			25,000	20,000	Hail	All crops and most buildings in path destroyed or damaged.
Avoyelles Parish, La.	13	11:30 a.m.			0	0	35,000	Slight	Tornado	Path short.
Rotan, Fisher County, Texas	13	4:30 p.m.	†15				50,000	5,000	Wind and hail	Mostly hail damage. Roofs, business buildings, residences, auto tops, barns, and fruit trees damaged.
Truby, Jones County, Texas	13	5:15 p.m.	†18	30			3,000	2,000	do	Mostly hail damage to houses, barns, and automobiles.
Abilene, Texas	13	5:40 p.m.	880				250,000		do	Hail damage, $237,500; wind damage, $12,500. Wind up to 68 m.p.h. from northeast at 6 p.m.
Simmesport, Avoyelles Parish, La.	14	Early a.m.	†2	5			Slight	25,000	Hail	Destroyed all crops in path.
Pickens and Tuscaloosa Counties, Ala.	14	4:20-4:50 p.m.	†2	40			50,000	500,000	Hail, wind, and electrical	Moved eastward from Ethelsville to Peterson. Of property damage, $42,500 by hail, $7,000 by wind, and $500 by lightning. Stones up to size of "ice cubes" at Reform, where most of property damage occurred.
Russell County, Ala.	14	Late afternoon							Hail	Slight damage to airplane flying through hail. Stones 1/2 to 3/4 inch in diameter.
Sarita, Kenedy County, Texas	14	2:55 p.m.	†15	20		2	15,000		Wind and hail	Hail damage $10,000; wind, $5,000. Houses unroofed, garages destroyed, and trees broken.
Riviera and Vattman, Kleberg County, Texas	14	2:55 p.m.	†15	20		6	60,000	175,000	do	Baffin Bay area. Same storm as visited Sarita, in adjoining county.
Fresno, Fort Bend County, Texas	14	4 p.m.	100		0	0	1,000		Tornado	Damage to farm buildings. Tornado moved northward.
Nash County, N.C.	14	4 p.m.					10,000	25,000	Hail	Area of damage 25 square miles.
Mountgomery County, N.C.	14	6 p.m.	50	3	0	0	*2,500	*	Tornado	Damaged some buildings and peach trees.
Pleasant Grove Union County, N.C.	14	6:30 p.m.			0	6			do	One home destroyed and two damaged. Four other buildings damaged.

Table 4--Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Pushmataha County, Okla.	14	6:45 p.m.	†1	3			$2,000	$5,000	Hail	Struck area around Antlers.
Montgomery County (northern portion), Ala.	14	8:39-8:48 p.m.	†1	10			500	30,000	do	From Maxwell Field, across north Montgomery, and eastward to Mt. Meigs. Stones up to size of eggs. Greatest crop damage to crimson clover.
Sulphur Springs, Hopkins County, Texas.	14	9:50 p.m.	880	1			3,000	300	Wind and hail	Gardens, roofs, automobiles, and signs damaged.
Mathews Station (30 miles south of Montgomery), Ala.	14				1				Electrical	Boy killed while walking on road.
Boerne, Kendall County, Texas.	15	12:01 a.m.	†5	18	0	0	9,000	41,000	Tornado and hail	Hail light. Tornado moved southeastward.
Red River Parish, La.	15	12:30 a.m.					10,000	40,000	Hail	Destroyed crops and damaged timber.
Orlando and vicinity, Fla.	15	Noon - 12:35p.m.		6 to 8	0	0	25,000		Tornadoes	Two tornadoes apparently developed west-northwest of Orlando during passage of a squall line and moved east-southeastward through city but paths indefinite. Destruction included demolished buildings, unroofed buildings, minor roof damage, twisted trees, uprooted trees, and broken wire lines. Some evidence of tornadic winds at scattered places in and near city. Reports of funnel cloud and loud roaring noise for several minutes before beginning of destructive winds.
Bell Road, Chesterfield County, Va.	16	Afternoon			1				Electrical	Man killed by lightning, while mowing lawn.
Kingman County, Kans.	16	6 p.m.	200	††440	0	0	1,500		Tornado	Outbuildings leveled on one farm 2 miles north of St. Leo.
Leavenworth County, Kans.	16	6 p.m.	†1 1/2	3					Hail	Hailstones size of large marbles. Slight damage to property and crops.
McPherson and Reno Counties, Kans.	16	6-8 p.m.	†3	15			27,500	250,000	do	Damaged area extended from 5 miles east of Hutchinson through Buhler to vicinity of Inman. Wheat flattened and trees stripped. Hail 4 inches deep at Inman; ranged up to size of hens' eggs.
Osage County, Kans.	16	6:30 p.m.							do	Marble-size hailstones fell in vicinity of Carbondale.
Dewey County, Okla.	16	7:30 p.m.	100	7	0	1	3,490	100	Tornado	Struck in southern part of county in Aledo community and west of Putnam. Storm moved southward.
Kemmerer, Wyo.	16-19								Flood	High water due to rapidly melting snow in mountains.
Temple, Bell County, Texas	17	1:25 p.m.	†1				1,000	200,000	Wind and hail	Hail drifts 2 to 3 feet deep.
Gadsden County, Fla.	17	4 p.m.		5				100,000	Hail	Hailstones of ping-pong ball size wrecked 12 acres of tobacco shade and damaged shades on other farms. Storm path included some bright tobacco and about 1500 acres of corn.
Mt. Washington, Ky.	17	4 p.m.					30,000	7,000	Wind, hail, and rain	Houses unroofed, trees blown down, windows smashed, and truck gardens torn up.
Rockingham, Augusta, and Albermarle Counties, Va.	17	4-8:30p.m.	†1/2-5				*200,000	*	Hail, electrical and rain	Hail in Afton, Batesville, White Hall, Covesville and Dale Enterprise Communities damaged 100 acres of peaches and 500 acres of apples. Harrisonburg streets flooded by heavy rains, and fruit, small grains, and buildings damaged by hail. Several turkeys killed.
Cook County (northeastern portion), Ga.	17	5-5:30p.m.	800	15				2,500	Hail	Small hail fell over a small area, with losses confined to fields of tobacco.
Thomas County (northern and east-central portions), Ga.	17	5-6 p.m.					Slight	200,000	do	Scattered hail covered area of 200 square miles, with heaviest damages between Boston and Coolidge. Hail of large size fell for 15 to 30 minutes. Many fields of cotton, corn, tobacco, watermelons, and other crops destroyed.
Grant County Kans.	17	5:30 p.m.	†5	8				10,000	do	Damage to wheat.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Ware County (northeastern portion), Ga.	17	Late afternoon					$1,000	$150,000	Wind and hail	Heavy hail of large size hit area between Dixie-Union and Haygood. Many fields of tobacco, corn, and other crops ruined, with complete destruction in some areas. Tobacco that had been waist-high was left as field of stumps after storm. High winds blew over a small garage and caused other minor miscellaneous damages, including appreciable damages to tall pine trees. Damage by hail, $150,000; wind, $1,000.
Progress, Pa.	17	7 p.m.							Electrical	Lightning struck a home, resulting in fire in attic.
Roger Mills County, Okla.	17	10:45 p.m.	†5	7				1,000	Hail	Grimes, Sweetwater, and Meridian communities affected over area 5 by 7 miles. Very little wheat in area. No row crops up. Gardens severely damaged.
West Palm Beach, Fla.	17								do	Hailstones of marble size covered ground.
Ocala, Fla.	17								do	Hailstones up to ping-pong ball size covered ground.
Chambersburg, Pa.	18	9:15 a.m.							Electrical	Lightning damaged power substation. Some hail.
York County, Pa.	18	10:30 a.m.							Thunderstorms and rain	Telephone service in York County interrupted. Yocumtown exchange out of service from 10:30 a.m. to 3:30 p.m. Local flooding in some sections of York. Poorhouse Run, which flows underneath part of city, broke through conduit, buckling sidewalk and street and flooding adjacent cellars.
Palmyra, Pa.	18	Morning					*9,000	*	Electrical	Lightning struck and fired barn near Palmyra, destroying it and its contents of machinery, lumber, and corn.
Uniontown, Pa.	18	Late morning							Rain and hail	Heavy rain caused local flooding of streets and some stores, and snarled noon-hour traffic in business district. Hailstones, size of marbles, covered street.
Amherst County (northeastern portion), Va.	18	2-2:15 p.m.	†2	15					Hail	Damage included with hailstorm of 23d, same county.
Critz Community, Va.	18	2-2:30 p.m.	†3	5				6,000	Hail and wind	Apples, peaches, and small grains badly damaged. Many young fruit trees badly injured.
Frederick County, Va.	18	2-4 p.m.	440	2				100,000	Hail	Hail size of bantam eggs in the Stephen's City-Double Toll Gate-Timber Ridge area damaged 7 square miles of scattered orchards.
Fauquier County, Va.	18	2:30-3:30 p.m.	†10	10					Hail and electrical	Hail in Markham, Delaplane, Marshall, and The Plains did extensive damage to apples and small grains. Lightning killed several horses.
Orange, Madison, and Culpeper Counties, Va.	18	2:30-4p.m.						4.000	Hail	Peaches, small grains, young corn, and gardens damaged.
Augusta County, Va.	18	3:15-3:25 p.m.	†5	10					Hail and wind	Heavy damage to fruit in Greensville, Stuart's Draft, and Waynesboro areas.
McCook, Nebr.	18	4 p.m.			0	0	15,000		Tornado	Unroofed a lumber shed and broke plate glass windows.
Newberry, S.C.	18	Afternoon						1,000	Hail	Potential crop damage as fields may be replanted this early in season.
Pittsylvania, Va.	18	Late afternoon	†1	3				10,000	do	In Renan Community hail destroyed tobacco plant beds, gardens, and wheat. Slight damage to roofs.
Hanover County, Va.	18	6-7 p.m.	440	3				4,000	do	Hail, 3/4 to 1 inch in diameter, demolished crops over small area northwest of Ashland.
Scotland County (western portion), N.C.	18	7 p.m.						2,000	do	Area of damage 5 square miles.
Chase County, Kans.	18	7 p.m.	100	15	0	2	60,000		Tornado	Grain elevator destroyed at Cedar Point. Several farm buildings in northerly path damaged or destroyed. Injuries were from flying glass.
Jewell County, Kans.	18	7 p.m.			0	0	500		do	Sheet iron building destroyed 1 mile south of Burr Oak.
Russell County, Kans.	18	7:34 p.m.			0	0	0	0	do	Dissipated into clouds after passing over north end of Russell. Funnel did not reach ground.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Alexandria, Va.	18	7:45 p.m.				11			Electrical	Lightning struck railroad signal box, causing signal to change and stopping train. A second train following on same track collided with first. Damage to trains slight, but 11 persons hospitalized for treatment of minor injuries. Hundreds of other persons shaken up or bruised.
Richmond, Va.	18	8-10 p.m.					$1,000		do	Lightning struck chimney of 12-story apartment; bricks scattered hundreds of feet, damaging 6 automobiles.
Goochland County, Va.	18	8:30-9p.m.	440	2			*520	*	Hail	Hail cut wheat, strawberries, alfalfa, and young corn to pieces. Outbuilding roof damaged.
Marion County, Ohio	18								Wind and hail	Trees, gardens, and windows damaged. Hail to depth of 1 inch.
Philadelphia, Pa.	18								Electrical	Lightning struck power lines serving television station, forcing it off air for nearly 2 hours.
Butler County, Kans.	19	1:30 a.m.		††150	0	0	1,000		Tornado	Unroofed garage and tool house, and damaged housing unit in southern section of El Dorado.
Copper Creek Chapel Community, Scott County, Va.	19	2:20-3p.m.	†1	1 1/2			2,000	$5,000	Hail	Hail as large as birds' eggs damaged buildings, trees, and crops over about 800 acres.
Cumberland County, N.C.	19	6 p.m.						2,000	do	Area of damage 2 square miles.
Garvin County, Okla.	19	6 p.m.	880	1/2			25,000		do	Hail in Pauls Valley and vicinity very large, 9 to 11 1/2 inches in circumference. Damage to roofs of buildings and automobiles.
Rice, Navarro County, Texas	19	8 p.m.	†1 1/2	3			1,000	5,000	Hail and wind	Hail light.
Chatfield, Navarro County, Texas	19	9 p.m.	†4				500		Hail	Hail light.
Honey Grove, Fannin County, Texas	19	9:45 p.m.	†1	8				50,000	Wind and hail	Wind damage; hail light.
Windom, Fannin County, Texas	19		†6	8			2,000		do	$1,000 hail damage; $1,000 wind damage.
Mitchell County, Kans.	20	Noon	†2 1/2	6				40,000	Hail	Wheat losses ranged to total destruction near Scottsville and in an area between 2 and 5 miles north of Beloit, thence westward for about 4 miles. Hail small.
Tattnall County (southeastern portion), Ga.	20	4:45-5:15 p.m.	†4	5			2,000	250,000	Wind and hail	Heavy hail, up to 3 inches in diameter, devastated crops over wide area, involving about 50 farms. About 100 acres of tomatoes, 300 acres of tobacco, and considerable acreage of cotton, sweetpotatoes, and other crops ruined. Roofs of several homes damaged by high winds, also other miscellaneous damages of minor nature. Damage by hail, $250,000; wind, $2,000 or more.
Grant County, Okla.	20	5 p.m.	†1	18				10,000	Hail	Ten to 40 percent of wheat damaged in path from 6 miles west of Jefferson to 4 miles south of Pond Creek.
Dodd City, Fannin County, Texas	20	9:30 p.m.	†3	4			2,000	10,000	Wind and hail	Wind damage $2,400; hail damage $9,600.
Kerens, Navarro County, Texas	20	10 p.m.	†5				100,000	100,000	High wind and hail	Fifty percent hail damage; 50 percent wind damage.
Cloud County, Kans.	20	P.m.	† 2 1/2	10				25,000	Hail	Occurred south of Jamestown and east of Scottsville.
Clifton, Bosque County, Texas	20		†4	12					do	Thirty thousand acres of farmland stripped.
Booneville, Ind.	21	2:30 p.m.	†3-4	6			10,000	3,000	Hail and wind	Hailstones up to 2 inches in diameter severely damaged gardens and broke windows. Wind severely damaged or destroyed 20 Government granaries, with a loss of $8,000.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Vincennes, Ind.	21	4:30 p.m.	†1 1/2	10			$25,000	$175,000	Hail and wind	Wheat, orchards, gardens, melons and other crops damaged or ruined. Hail, ranging from 3/4 inch in diameter to size of hens' eggs, broke signs, damaged roofs, and killed 10 hogs (75 lbs. each.) Storm moved northwestward.
Illinois, southern fifth	21	Afternoon			1		5,000	20,000	Electrical and hail	Hail damaged roofs, windows, gardens, and fruit crops in several localities. Lightning killed a man near Freeman Spur in Williamson County.
Custer County, Okla.	22	12:39 p.m.	100	1 1/2	0	0			Tornado	Near Butler. Funnel observed by Highway Patrol; also observed and described by farmer on whose farm it touched ground. Telephone poles and some fences damaged.
Washington, Ind.	22	4 p.m.	†1	3 1/2			8,000	7,000	Electrical, wind and hail	Wind and lightning damaged power lines and transformers. Wind and hail broke trees, shrubs, windows etc. Hail, averaging 1/2 to 3/4 inch in diameter, severely damaged gardens, wheat, and fruit.
Mason County (extreme northwestern portion), W. Va.	22	7 p.m.							Hail and rain	Hail, size of large pullet eggs, did considerable damage to early gardens and crops. Hail accumulated to depth of 11 inches in places.
Glade Spring, Va.	23	2:30 p.m.	600	6				2,000	Hail	Principal damage to tobacco, strawberries, fruit trees, and clover.
Pike County, Ky.	23	3-4:30 p.m.					5,000	2,000	do	Windows broken, roofs torn up, crops flattened, and cars damaged. Some hailstones as large as baseballs
Baltimore, Md.	23	3:30 p.m.			1				Electrical and hail	One man killed when struck by lightning. Hailstones, approximately size of garden peas, fell in northern suburbs of Baltimore.
Oakville, Appomattox County, Va.	23	5-5:20 p.m.	880	11			300	10,000	Hail	Hail averaged 12 inches deep over area. Roofs and windows damaged. Crops destroyed.
Amherst County (northeastern portion), Va.	23	Afternoon						25,000	do	Damage is for hailstorms of 18th and 23d in same area
Laurens County, S.C.	23	Afternoon						8,000	do	Potential crop damage as fields may be replanted this early in season.
Indianapolis, Ind.	23	6 p.m.					25,000	1,000	Electrical, wind and hail	$20,000 barn destroyed by lightning. Ten small aircraft damaged by hail. Damage to gardens, neon sign windows, awnings, etc. Some trees down across power lines. Storm moved east-northeastward. A few oval-shaped hailstones up to 2 inches in length.
Phillips County, Kans.	23	6 p.m.	250	††440	0	0	9,000		Tornado	Main section of Phillipsburg rodeo grandstand destroyed. About one-third of 270-foot structure thrown into arena.
Five Forks Community, Prince Edward County, Va.	23	6-7 p.m.	440	5				10,000	Hail	Principal damage to tobacco, wheat, gardens, and hay crops.
Comanche County, Kans.	24	2:30-4:30 p.m.	75	4	0	1	3,000	1,000	Tornado	Ten distinct funnels reported across area 4 miles north of Protection. Light damage incurred in eastern part of county. Twisters moved slowly, and visibility unlimited with clear skies and sunshine in adjacent areas.
Martin County, N.C.	24	5 p.m.						800	Hail	Area of damage 2 square miles.
Riley County, Kans.	24	5:30 p.m.	40	15	0	0	15,000		Tornado	Path extended from northwest of Leonardville to 2 miles northwest of Randolph. Damaged rural building
Woodward County, Okla.	24	5:30-7:30 p.m.	†5	5			3,000	30,000	Hail	Area affected near and in Supply and Ft. Supply.
Woodward County, Okla.	24	9:30 p.m.			0	2	20,000		Tornado	Struck Quinlan community; at least four business buildings demolished. Path narrow. Not a house left in town with window panes.
Greene County, Ia.	24	Night							Wind and electrical	Winds and lightning strikes caused minor damage in western sections of Greene County.
Rock River, Wyo.	24					1			Electrical	Man injured when struck by lightning.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Ohio, north-central counties	24								Electrical and rain	Excessive rains caused considerable soil washing. Several barns struck by lightning.
South Bend, Ind.	25	2-3 p.m.					$2,210		Wind and electrical	Wind and lightning damaged power lines and transformers. Limbs were blown on car tops, etc. Storm moved eastward.
Scotland County (southwestern portion), N.C.	25	3:30 p.m.						$1,000	Hail	Area of damage 1 square mile.
Lamesa, Texas	25	4:30 p.m.	880		0	0	5,000		Tornado	Moved east-southeastward. Telephone poles and billboards damaged.
Denver and vicinity, Colo.	25-26	2:00-8:30 a.m.	†20	30		1	150,000	5,000	Snow	Storm began as rain turning to snow which reached a depth of 10 inches. Trees generally in leaf weighted down by moist snow, resulting in many broken limbs and uprooted trees. Some damage to telephone and power lines, and to buildings.
Columbia County, Pa.	25	5-6 p.m.	†4						Hail and rain	Storm apparently originated near Benton and moved southward beyond Mainville. Hailstones, as large as hickory nuts, coated ground in Mainville area, and heavy rain caused local flooding, severe local erosion, and carried light buildings from their foundations. Damage from hail relatively light since many crops not far enough advanced for serious injury. Several roads blocked briefly, due to dirt, stones, and other debris carried onto them by heavy rains.
Hobgood, Halifax County, N.C.	25	8 p.m.							Hail	Area of damage 1 square mile. Three hundred acres of cotton completely destroyed, 150 acres of tobacco badly damaged, and 500 acres of corn severely damaged.
Berks County, Pa.	25	9 p.m.					*50,000	*	Thunderstorm, hail, and rain	Heavy hail fell in area between Fleetwood and Lyons, accumulating to depth of 10 to 14 inches in gutters along roads; still covered some fields and was 4 to 12 inches deep in gutters following morning. Heavy hail lasted 15 minutes, tore crops to shreds, shattered windows, and beat holes in slate roofs. In some cases young plants washed and beaten out of earth by deluge of hail and rain. Wernersville area also felt some effects from same storm when winds ripped skylight from house roof and dropped pieces of it on parked auto. Additional heavy rain fell in this area on morning of 26th, bringing streams to bankfull levels.
Owensboro, Ky.	25				2				Electrical	Two persons killed when struck by lightning.
Kansas City, Mo.	25				1	1			do	Woman killed by lightning strike, and her son thrown to ground and stunned.
Crawford County, Ohio	25								Hail	Truck farms damaged.
Iredell County, N.C.	26 and 29	3:30 p.m. on 26th, 2:30 p.m. on 29th					25,000	325,000	do	Area of damage 12 square miles. Most damage on 26th. Hundreds of acres of wheat and oats completely destroyed.
Catawba County, N.C.	26	4 p.m.					750	26,500	do	Area of damage 7 square miles.
Hertford County, N.C.	26	4-6 p.m.						7,500	do	Area of damage 5 square miles.
Washington County, Va.	26	Afternoon					*4,000	*	Hail and electrical	Storm in Abingdon, Bristol, and Damascus sections. Eleven head of cattle and three horses killed by lightning. Considerable damage to crops by hail.
Nashville, Tenn.	27	2 p.m.			1		25,000	300	Electrical	One person killed by lightning on fairway of golf course. One house damaged by fire caused by lightning.
Coeburn, Wise County, Va.	27	4:45 p.m.					*Several thousand	*	Flash flood and hail	Heavy rains caused flash flood in Little Toms Creek at Coeburn, flooding business section and some of residential area. Minor slides blocked Route 70 between Coeburn and Norton, and Coeburn and St. Paul. Crops suffered considerable damage from heavy rains and hail, especially in Sandy Ridge section.
Ewing and York Communities, Lee County, Va.	27	Mid-afternoon	†1	2			*2,500	*	Hail and electrical	Lightning burned one tenant house and killed two cows. Hail caused slight damage to crops.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Waynesboro, Wayne County, Tenn.	27	Afternoon					$1,000	$1,000	Thunderstorm with hail and wind	Some buildings unroofed. Hail damaged gardens and crops.
Sistersville and vicinity, W. Va.	27	8 p.m.-9:15 p.m.					400	100	Rain	Water to a depth of 2 feet at one time in streets at edge of business district. Damage to streets caused largely by sewers being obstructed; few basements flooded; gardens damaged.
Borger, Hutchinson County, Texas	27	10:20 p.m.	†8				335,000		Wind and hail	$35,000 wind damage; $300,000 hail damage. Several thousand window panes broken; roofs damaged.
Pittsburgh, Pa.	27	Evening							Electrical, rain and hail	Several persons suffered minor injuries in Pittsburgh. Two small children swept some distance down slope by rushing waters, but were rescued without apparent injury. 0.95 inch rain fell in 15 minutes, causing local flash flooding. Lightning struck at least 10 electric power transformers or poles. One bolt struck cornice of bank building, sending a shower of bricks to street, damaging autos in parking lot. Heavy rain loosened rocks and cause slides; also, halted auto and trolley traffic in sections of city. Four feet of mud and rocks covered a 30-yard area in city. The intersection of Washington Boulevard and Allegheny Boulevard covered with several feet of water.
Marion, Ark.	27				1				Electrical	Frisco Railroad conductor killed by lightning, as he was uncoupling a car in yards.
Alderson, W. Va.	27								Rain, hail, and wind	Storm reported as worst ever to hit Alderson. Trees blown down, roofs blown off, streets flooded, window broken, and gardens beaten into ground.
Pulaski County (southwestern portion), Ga.	28	3 p.m.						5,000	Hail	Hail of small size caused heavy damage to cotton, corn, and peanuts in very small area, with rather heavy damage to some pecan trees in another small area nearby.
Lowndes County (northcentral portion), Ga.	28	3:30-4 p.m.	†2	7			500	10,000	Wind and hail	Hail, mostly of marble size, occurred between Cecil and Hahira. Tobacco, corn, watermelons, cotton, and other crops damaged rather severely in some fields, with light to moderate damages over most of area. High winds caused minor property damages of about $500.
Augusta, Ga.	28	5:40-6 p.m.					3,800		Wind	Severe thunderstorm, with wind in gusts up to 90 m.p. damaged many house roofs and felled many trees, delimbing many others; telephone and power lines torn down either by high wind or falling trees.
Rooks County (northwest corner), Kans.	28	8:30 p.m.	†3	7				30,000	Hail	Some stones size of golf balls. Storm moved northeastward.
Decatur County, Kans.	28	9:30 p.m.	†2	12				200,000	do	Chief damage to wheat in area 10 miles south of Oberlin. Hailstones up to 2 inches in diameter.
Albany, Ga.	28	9:30-10:30 p.m.					*6,670	*	Wind, rain, and electrical	High winds of 50 to 60 m.p.h. caused widespread damages in Albany in connection with a severe thunderstorm moving in northeastward direction. Many trees blown down, tearing down power and telephone lines; numerous buildings damaged, mostly roofs, and a few small buildings blown over. Lightning knocked out two power substations. Heavy rains flooded several streets. Some crops flattened by high winds, but suffered little damage.
Madison County, Fla.	28								Hail	Tobacco and corn damaged in southeastern section of county.
Leon County, Fla.	28								do	Clover and lupine damaged.
Rush County, Kans.	29	1:30 a.m.	†4	7			8,000		Winds	Farm buildings damaged west of LaCrosse and near McCracken.
Saline County, Kans.	29	4 a.m.	†1 1/2	2				1,000	Hail	From 10 to 15 percent loss to wheat in small areas near Bavaria and south of Gypsum. Most of crop previously blown out.
Rutherford County, N.C.	29	2 p.m.						2,500	do	Area of damage 5 square miles.
Mayes County, Okla.	29	2:48 p.m.	33	1	0	0	100		Tornado	Struck about 3 miles south of Adair. Funnel observed by many as it moved northeastward. Storm preceded by hail but no damage. Damage to one outbuilding. One calf killed. Shade trees damaged.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Flatwoods Section, Wise County, Va.	29	3-4 p.m.	1320	2				$18,500	Hail	Principal damage to apples; slight damage to other crops.
Marietta, Greenville County, S.C.	29	3:30 p.m.					$1,000	10,000	Hail and wind	Potential crop damage as fields may be replanted this early in season. Property damage from wind.
Pilot Point, Denton County, Texas	29	5 p.m.	300		0	0			Tornado	Moved eastward.
Fort Worth, Texas	29	6:47 p.m.				2	1,500		Wind and electrical	Wind damage $500; lightning damage $1,000. Elevator penthouse on 7-story downtown building damaged by lightning, with injury to man by a falling brick. Residence fired by lightning in River Oaks section.
Greenville, Hunt County, Texas	29	7 p.m.	†10	15	4		1,000,000	1,000,000	Wind and hail	Damage to automobiles by falling and flying objects; many buildings, barns, garages, and warehouses completely destroyed. Four people died from electrocution, becoming entangled in "live" wires blown down. Hail damage $400,000; wind damage $1,600,000.
Dallas, Texas	29	7:55 p.m.	†12	30			1,500		do	Principal damage to shade trees, roofs and structures, and power lines by high winds.
Mechanicsville to Mont Clare, Darlington County, S.C.	29	8-9 p.m.						10,000	Hail	Crop damage potential as fields may be replanted this early in season.
DeSoto Parish, La.	29	11 p.m.			0	13	15,000	5,000	Tornado	
Sabine Parish, La.	29	11 p.m.			0	0	17,000	8,000	do	
Buffalo (12 miles northeast of), Mo.	29				2				Electrical	Mother and son killed by lightning in their farmyard.
Moores Hill, Ind.	29						500		do	Methodist Church damaged by lightning.
Leon County, Fla.	29								Hail	Clover and lupine damaged.
Edwardsville, Ill.	30	Morning	30				5,000		Electrical	Two homes damaged by lightning.
Olive Hill, Ky.	30	2:40-3:15 p.m.					*2,000,000	*	Rain	Flash floods heavily damaged homes, crops, and business houses. Telephone poles uprooted.
Jones County, N.C.	30	3:30 p.m.						15,500	Hail	Area of damage 3 square miles.
Greene County, N.C.	30	4:30 p.m.						600	do	Area of damage 1 square mile.
Dillon County, S.C.	30	Afternoon						10,000	Hail	Crop damage potential as fields may be replanted this early in season.
Dalton (near), Ga.	30	Afternoon					750		Wind	Described by one observer as small twister; high winds hit two small areas southeast of Dalton. Large chicken house blown over and a large tree blown directly on an automobile; several trees uprooted. One-half mile away, barn unroofed.
Atlanta, Ga.	30	Early night					1,000		do	Several trees blown over by high winds, one of which crashed into a home, causing substantial damage; and small structure nearby blown over
Stewartsville and Moneta, Bedford County, Va.	30						*Several thousand	*	Rain	More than 4 inches of rain flooded Beaver Dam and Falling Creeks, washing out small bridges, blocking roads, and covering many acres of crops.
Lakeland, Ga.	31	Early m morning					70,000		Electrical	High school building destroyed by fire believed caused by lightning strike.
Scotland County (north-central portion, N.C.	31	4:20 p.m.						3,000	Hail	Area of damage 2 square miles.
Calico Crossroads, Pitt County, N.C.	31	4:30 p.m.			0	0	4,000		Tornado	Length and width of storm unknown, but reports indicate it was short.

† Miles instead of yards. †† Yards instead of miles. * Crop damage included with other property damage.

PRELIMINARY TOTALS BY STORM TYPES FOR MAY 1950

Type	Deaths	Injuries	Damage
Tornado	2	101	$ 1,607,790
Wind	17	57	9,115,455
Hail			4,480,277
Electrical	11	42	550,630
Rain and flash floods	23	1	2,719,720
Snow		1	155,000
Fire			75,000
Chemical Fog			100,000
Total	53-	202	-$18,803,872

RIVER STAGES AND FLOODS

MAY 1950

Severe flooding occurred along the Red River of the North for the second consecutive month. The flood crests from Grand Forks, N. Dak., to the Canadian border exceeded those in April by 1 to 2 feet and were generally the highest in the past 100 years. At Grand Forks the crest was the highest since 1897.

Heavy property damage resulted from the record-breaking flood in the extreme Upper Mississippi River during April and May. The flooding along the James River in South Dakota was severe and the crests were the highest recorded during any previous month of May. Several severe flash floods occurred in the Missouri Basin which caused considerable property damage and the loss of several lives. The worst of these occurred along Salt Creek in Nebraska. Excessive rains caused record stages on the Illinois River in the Arkansas Basin.

HUDSON BAY DRAINAGE.--The first crest of the severe flood on the Red River of the North reached Pembina, N. Dak., on the last day of April. The crest of 51.7 feet was the highest stage recorded at that point in the history of the station.

While the first crest was reaching Pembina, N. Dak., a second rise was developing in the reach between Moorhead, Minn., and the confluence of the Bois des Sioux and Ottertail Rivers from the steady rains and additional snowfall during the first few days of May. By the 8th, 2 to 3 inches of additional moisture had accumulated. The maximum temperatures during the first 7 days of the month ranged from 40 to 50 degrees over the southern portion of the basin; by the 11th a high of 70 degrees was recorded.

The runoff was particularly heavy from all of the tributaries in Minnesota which flow into the Red of North. Flooding was extremely severe along the Red Lake River at Crookston, Minn., with the crests on the 7th (25.3 feet) and 10th (24.8 feet) higher than the first crest of 24.0 feet on Apr. 23. The crests along the main stem of the Red of North from Grand Forks, N. Dak., to Pembina, N. Dak., were from 1 to 2 feet higher than in April. The river receded only 0.7 foot at Pembina during the first 6 days of May before beginning its second rise to a record crest of 52.9 feet between the 12th and 14th. The flooded areas were reported up to 30 miles wide in places near Pembina and generally around 10 miles in width from Drayton, N. Dak., northward.

At least 9 persons lost their lives by drowning. Heavy damage resulted to highways and bridges from the severe prolonged flooding. The loss of livestock and property was tremendous.

(See the April issues of the National Climatological Summary and Monthly Weather Review for a discussion of the flooding during April and an analysis of the meteorological conditions affecting these floods.)

ATLANTIC SLOPE DRAINAGE.--Flooding occurred along the Cape Fear, Neuse, and Tar Rivers in North Carolina due to heavy rains over the upper portions of these streams during the middle of the month. These heavy rains were followed by several days of showery weather. Rainfall in the lower portions of the streams was considerably less and the crests flattened off as they moved downstream. Locally heavy thundershowers occurred on the last two days of the month in the headwaters of the Roanoke River causing sharp rises in the stream at Roanoke and Altavista, Va., on the 31st.

EAST GULF OF MEXICO DRAINAGE.--Sharp rises occurred on the Warrior River in Alabama during the beginning of the month due to heavy rains in the upper portion during the first few days of May. Rainfall was also heavy over the middle and lower reaches of the Tombigbee but the rises were considerably smaller. Since the crest on the lower Tombigbee moved out ahead of the crest on the Warrior, the only flooding that occurred was around Lock 3 where banks are low and flooding is frequent. No damage occurred.

Rises were also sharp over the middle and upper reaches of the Pearl River and over the upper reach of the Chickasawhay in Mississippi due to heavy rain during the same period. Rainfall during the first two days of May ranged from 3.5 to 4 inches over these reaches. Flood stages were reached on the Pearl River from above Jackson, Miss., to the coast and on the Chickasawhay around Enterprise, Miss.

UPPER MISSISSIPPI BASIN.--The extreme upper portion of the Mississippi River continued in flood throughout the month and was still in flood at Aitkin, Minn., on June 8. The outstanding features of this flood are the record-breaking high stages and the phenomenal duration of the flood. At Aitkin, Minn., the crest was 19.45 feet on the 21st, 2.45 feet higher than the previous maximum of record (17.0 feet) in June 1888. Further south at Fort Ripley, Minn., the crest was 13.3 feet on the 22d, 0.5 foot higher than the previous record of 12.8 feet on July 1905. The duration of the flood at Aitkin will be close to 60 days and at Fort Ripley 47 days, both new all-time records. The property damage from the high water in Aitkin was heavy. The severity and persistance of this flood did not cause damage in the Minneapolis-St. Paul area but did maintain a good discharge through the cities from Apr. 20 to June 7. Flood stage was exceeded in the reach below Minneapolis-St. Paul to Prarie du Chien, Wis., and at scattered points below for a brief period during the second decade of the month. The crest of 12.6 feet at La Crosse, Wis., was the highest stage at that point since May 1943 when it reached 13.3 feet. The high water was due mostly to the melting of new and old snow and very little to the inflow from the Chippewa and Black Rivers. The Black River at the time of this flood was only slightly above base flow. Had these two tributaries been high, the flood would have reached much more serious proportions.

Flooding along the Des Moines River in Iowa on the 10th and 11th was due to heavy rains on the 8th and 9th. The rainfall during the period averaged over 2 inches throughout the Des Moines and Raccoon Basins. The rainfall was heavier over the headwaters of the tributaries entering the main stem of the river below Des Moines; Chariton reported 3.8 inches and Osceola, Iowa, 5.36 inches. Corn planting in the lowlands was delayed somewhat, otherwise the damage from the flooding was small.

Flooding in the upper Illinois River that began in April was severe and a near-record crest occurred at Peru, Ill. The crest of 26.1 feet was 1.7 feet lower than the record crest of 27.7 feet in 1943.

Flooding in the Meramec Basin was due to heavy rain (2 inches) on the 10th. The crests ranged from 4 feet above flood stage at Steelville, Mo., to 8 feet above at Pacific, Mo.

MISSOURI BASIN.--Severe flooding occurred along the James River at Ashton and Huron, S. Dak., during the last two decades of the month. The crest stages at Ashton

(19.1 feet) and Huron (14.2 feet) were record stages for the month of May. Higher stages have occurred at these stations during March in connection with ice breakups. This flooding was due to snow melt and spring rains which accelerated the thawing and added to the volume of water reaching the main stem of the James. A snow survey showed the water content of the snowcover to vary from about 1 inch at Jamestown, N. Dak., to 5 inches in the headwaters of the James.

Moderate to locally severe flooding occurred on the upper Solomon, lower Republican and the Big Blue and Little Blue Rivers in Kansas and Nebraska due to heavy rainfall on the 8th and 9th. A minor overflow resulted on the upper Kansas River at Manhattan, Kans., from the heavy flow from the Republican and Big Blue Rivers. The rainfall over the Solomon Basin above Beloit, Kans., averaged 3 inches at Covert, Kans., the rainfall totaled 5.5 inches during a 4-hour period late on the 9th. The greatest amount ever recorded (6.46 inches) in a 24-hour period was reported at Concordia, Kans., on the Republican on the 7-8th. Considerable flash flooding occurred over a limited portion of the city due to the bursting of a small dam. Rainfall over other portions of the basin averaged near 1.5 inches. In the Big Blue Basin, the rainfall was heavy above Beatrice, Nebr., with amounts ranging from over 4 inches at Tobias, Western and Crete to 6.5 inches at Wilber, Nebr. Very severe flooding developed from near Wilber downstream through DeWitt, Nebr. The rainfall below Beatrice averaged 1.75 inches. Local flash flooding occurred in the upper portion of the Little Blue River in Kearney County where rainfall was unofficially reported at 9 inches. Severe damages occurred over limited areas with heaviest losses resulting from flash flooding in Saline County in Nebraska and in the city of Concordia, Kans. Damages over the upper reaches of the Solomon and Little Blue Rivers were moderate.

Severe flash floods occurred on Salt Creek in southeastern Nebraska following heavy downpours on the 8th and 9th. The flooding in the Lincoln, Nebr., area was severe, Salt Creek reaching a stage of 42.4 feet at that point, the highest stage since 1908 when it reached a stage of 48.3 feet. Flooding downstream to Ashland, Nebr., was less severe. The heaviest rainfall occurred just outside the Salt Creek drainage, south of Bennet, Nebr., in the extreme upper portion of the Nemaha drainage. A large area in the southern portion of Lancaster County received between 10 and 12 inches of rain. The heaviest rain occurred between 4:30 p.m. and 10 p.m. of the 8th. Shortly after midnight of the 8-9th, the stream began overflowing in the Lincoln area. Considerable damage resulted from the flash floods along Salt Creek which affected three cities. Approximately 11,000 acres were flooded, 3,500 acres of which were in the Lincoln area and 1,100 in the Ashland area. The flood was most dangerous on highway 77 and other highways in southern Lancaster County, where 8 persons met their death when the sudden onrush of water carried their cars off the highways. No other deaths were reported in the county but there were several instances of narrow escapes and rescue of motorists. Thirteen bridges, mostly wooden, were washed out south of Lincoln.

The rains from the 8th to the 9th caused flash floods on the Nishnabotna River in Missouri and the Big Nemaha in Nebraska, as well as along the main stem of the Missouri from Nebraska City, Nebr., downstream to Leavenworth, Kans. Little, if any, damage resulted from these overflows. Flash floods resulted again from the heavy rains on the 18th and 25th through the 27th in other small streams.

Along the main stem of the Missouri the crests resulting from the spring breakup in April moved downstream to St. Charles, Mo., by May 3. The crests flattened out as they moved downstream.

OHIO BASIN.--Minor flooding occurred along the lower portion of the Ohio River at Cairo, Ill., from the 14-18th due to frequent rain during the first half of the month. Rainfall in the Ohio below Louisville from the 9th to the 12th averaged 3.1 inches. Practically no farm land was flooded. The only loss reported was the loss of wages due to the suspension of construction of a railway bridge across the Ohio at Cairo.

WHITE, ARKANSAS AND RED BASINS.--Excessive rains over northeastern Oklahoma, northern Arkansas and southern Missouri from the 9th to the 11th caused flooding on the upper White and Arkansas Rivers and several tributaries. Precipitation over the headwaters of the White averaged 8.7 inches, and 4.6 inches over the middle reaches of the White and the upper Black. The greatest 3-day total reported was 12.05 inches at Rogers, Ark. Unofficial amounts of 20 inches were reported in the Arkansas Basin. Crests in the upper White ranged from 15 to 19 feet above flood stage and in the lower White from 4 to 8 feet. In the Arkansas Basin, below Muskogee, Okla., the crests ranged from 3 to 10 feet above flood stage. In the Illinois River, record stages occurred from Tahlequah, Okla., to the mouth. There was considerable damage to roads and buildings on the upper White River in the vicinity of Springdale, Mo. Damage along the other streams was confined mostly to crops.

Flooding in the Red Basin early in the month was due to rains that occurred during the night of Apr. 28-29th. Frequent heavy showers during the first half of the month prolonged the floods already in progress and caused additional overflows on other streams. Only minor flooding resulted on the Red and Little Rivers and little or no damage occurred. Considerable loss resulted along the Sulphur River due to delay in planting and damage to crops.

LOWER MISSISSIPPI BASIN.--The St. Francis River exceeded flood stage in the headwaters at Fisk, Mo., from the 11th to the 24th and at St. Francis, Ark., from the 8th to the 30th due to frequent heavy showers during the first half of the month. Little or no damage resulted as the area had just recently been flooded.

The main stem of the Mississippi exceeded flood stage at Cape Girardeau, Mo., from the 15th to the 17th due to frequent heavy rains during the first half of the month. The rainfall was heaviest from the 9th to the 12th and averaged 2.3 inches in the reach between St. Louis and Cape Girardeau, Mo., during that period. The river rose to wintin 1.5 feet of flood stage at New Madrid, Mo., and 5.3 feet at Natchez, Miss. The crests were rather sharp and the river fell rapidly after cresting.

ATCHAFALAYA BASIN.--The Atchafalaya River continued in flood throughout the month at Atchafalaya, La., and exceeded bank-full stage intermittently at Morgan City, La., from the 1st to 6th and on the 30th and 31st due to winds and tides.

WEST GULF OF MEXICO DRAINAGE.--Flooding occurred along the Sabine River and the Calcasieu River at Kinder, La., due to heavy rains during the last few days

of April and the first two days of May. The rainfall on the 1st and 2d averaged about 2 inches except in the Milam-Nacogdoches, Tex., area where it averaged about 4 inches. Heavy rain occurred again from the 10th to the 14th and from the 28th to the 30th. The Sabine was rising again at the close of the month and was above flood stage at Mineola and Bon Wier, Tex., on the 31st. Some damages occurred to oil well machinery and roads in Gregg County, Tex., in the area aroung Gladewater. There were also some temporary losses to pasture land along the rivers.

Two separate periods of flooding occurred along the Trinity River in Texas during the month, the first was due to heavy rains from Apr. 30 through May 2, and the second to heavy thundershowers from the 12th to the 13th. The crests during the first rise were higher as the rainfall was heavier and more general. Considerable farm land was flooded resulting in considerable damage to growing crops. There was some loss of income due to suspension of activities in the South Liberty oil field.

GREAT SALT LAKE BASIN.--Overflows occurred along the Weber River in Utah during the last half of May and the first few days of June. Flooding was due almost entirely to snow melt. The stages along the Weber River were considered the highest since 1936. Minor flooding also occurred along the lower portions of the Bear and Logan Rivers and Canyon areas along the west slope of the Wasatch Mountains. The principal damage from the overflows was to farm lands and crops in Morgan and Weber Counties. There was also some damage to roads, bridges and residential areas.

COLUMBIA BASIN.--The Snake River and larger tributaries rose slowly throughout the month due to the gradual melting of the heavy to near-record snow cover in the mountains. The rise at Lewiston, Idaho, was from 7.1 feet on May 1 to 12.8 feet on the 31st (flood stage 22 feet). Frequent cool periods prevented the sudden release of the big supply of water stored in the heavy snow cover even though the temperatures averaged near or slightly above normal. Local flooding occurred on the Port Neuf, a small and minor tributary, due to heavy rains during the first week.

The Kootenai River rose rapidly during the warm period from the 12th to the 16th. During the period it rose from a stage of 13.9 feet to 26.3 feet, 4.7 feet below bank-full stage. Cooler weather during the remainder of the month checked the rise and the river fell slowly to a stage of 21.6 feet on the 20th. It remained nearly stationary during the remainder of the month. Most of the snow at lower elevations had melted and run off by the close of the month. Snow at higher elevations remained intact and was unusually heavy over the upper Columbia.

The main stem of the Columbia rose slowly to above flood stage at Vancouver, Wash., on the 19th. It rose on an average of about 0.3 foot per day during the remainder of the month and the gage at that point read 18.6 feet on the 31st. Backwater from the Columbia caused the Willamette to exceed flood stage at Portland, Oreg., on the 28th. Precipitation during April was below normal over the Snake and considerably below normal over the entire Columbia Basin during May. The freezing level ranged between 7,000 and 10,000 feet, and rarely reached 14,000 feet. This type of weather has been favorable for the orderly dissipation of the heavy snow cover over the Columbia Basin this spring.

FLOOD STAGE REPORT

(All dates in May unless otherwise specified)

Table 5

MAY 1950

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			Ft.	
HUDSON BAY DRAINAGE					
Red of North:					
Breckenridge, Minn.	6	Mar. 31	Apr. 19	11.9	Apr. 3
		8	†	11.9	10
Moorhead, Minn.	17	Mar. 31	Apr. 20	27.2	Apr. 8
		6	18	24.9	13
Grand Forks, N. Dak.	30	Apr. 10	June 5	43.9	Apr. 25
				‡45.8	May 12-13
ATLANTIC SLOPE DRAINAGE					
Roanoke:					
Altavista, Va.	18	31	†	25.2	31
Randolph, Va.	21	31	‡	----	--
Weldon, N. C.	31	18	18	31.0	18
Williamston, N. C.	10	20	24	10.6	22
Neuse:					
Neuse, N. C.	14	15	16	14.8	15
Smithfield, N. C.	13	17	18	15.6	17
Cape Fear:					
Lock No. 2, Elizabethtown, N.C.	20	16	19	26.0	17
EAST GULF OF MEXICO DRAINAGE					
Pee Dee: Pee Dee, S. C.	19	18	20	19.3	19
Tombigbee: Lock No. 3	33	3	7	40.6	5
Sowashee Creek: Meridian, Miss.	15	1	2	15.8	2
Chickasawhay: Enterprise, Miss.	20	4	5	20.9	5
Pearl:					
Jackson, Miss.	18	2	14	25.6	6
Monticello, Miss.	15	2	8	20.4	4
Columbia, Miss.	17	4	10	18.9	6
Bogalusa, La.	15	Apr. 30	25	19.1	10
Pearl River, La.	12	5	23	14.4	10
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
St. Croix: Stillwater, Minn.	12	9	11	12.5	9
Rock: Moline, Ill.	10	Apr. 25	3	11.7	Apr. 29
Des Moines:					
Tracy, Iowa	14	10	11	15.6	10
Eddyville, Iowa	15	10	11	18.6	10
Ottumwa, Iowa	9	10	11	11.7	11
Illinois:					
Peru, Ill.	17	Apr. 24	9	26.1	Apr. 26
Peoria, Ill.	18	Apr. 25	12	24.9	Apr. 29
Havana, Ill.	14	Mar. 30	20	17.4	Apr. 14-15
				21.0	Apr. 30
Beardstown, Ill.	14	Apr. 4	22	18.4	Apr. 15-16
				21.9	2-3
Bourbeuse: Union, Mo.	15	22	22	16.1	22
Meramec:					
Steelville, Mo.	12	10	11	15.9	11
Sullivan, Mo.	11	10	13	17.3	11
Pacific, Mo.	11	10	14	19.0	13
		21	22	13.0	21
		20	30	11.7	30
Valley Park, Mo.	14	11	15	20.7	14
Mississippi:					
Hastings Dam, Minn.	15	10	14	15.5	12
Reads, Minn.	12	12	14	12.1	13
Winona, Minn.	13	12	18	14.1	14
La Crosse, Wis.	12	13	18	12.6	15
Gordons Ferry, Iowa	13	Apr. 25	28	15.1	20-21
Muscatine, Iowa	15	Apr. 28	5	15.5	1
Keithsburg, Ill.	12	Apr. 27	6	12.4	1
Keokuk, Iowa	12	Apr. 25	13	14.5	Apr. 25
				13.2	11

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			Ft	
MISSISSIPPI SYSTEM (Cont'd.)					
Upper Mississippi Basin (Cont'd.)					
Mississippi (Cont'd.):					
Gregory Landing, Mo.	12	Apr. 25	15	14.6	Apr. 26
				13.8	11-12
		22	27	12.6	24
Quincy, Ill.	14	Apr. 25	15	16.4	Apr. 27
				15.6	12
Hannibal, Mo.	13	Apr. 25	†	16.3	Apr. 27-28
				15.9	11-12
Louisiana, Mo.	14	Apr. 26	2	15.1	Apr. 28
		11	14	14.7	13
Grafton, Ill.	18	Apr. 30	6	18.6	1-3
		14	15	18.2	14-15
Chester, Ill.	27	15	16	27.6	15
Cape Girardeau, Mo.	32	15	17	32.6	16
Missouri Basin					
James:					
Ashton, S. Dak.	15	13	†	19.1	19
				18.8	30
Huron, S. Dak.	11	16	†	14.2	25
Nemaha: Falls City, Nebr.	20	9	9	25.0	9
Saline: Wilson, Kans.	12	10	10	17.0	10
Solomon: Beloit, Kans.	18	9	11	26.4	10
		21	21	20.6	21
Republican:					
Clay Center, Kans.	15	9	10	19.6	9
Wakefield, Kans.	11	9	10	11.5	10
Little Blue:					
Endicott, Nebr.	9	9	9	11.0	9
		29	30	11.4	30
Hanover, Kans.	14	8	10	17.0	8-9
				16.1	10
Big Blue:					
Crete, Nebr.	16	11	13	19.5	12
		31	31	18.0	31
Beatrice, Nebr.	16	9	10	24.6	8
Barnston, Nebr.	18	9	11	25.7	10
Blue Rapids, Kans.	20	9	11	28.3	9
Randolph, Kans.	22	10	11	23.9	10
Stranger Creek: Tonganoxie, Kans.	23	19	20	25.9	19
		22	22	23.1	22
Kansas: Manhattan, Kans.	17	10	10	17.2	10
Grand:					
Pattonsburg, Mo.	20	10	10	21.0	10
Chillicothe, Mo.	18	10	11	22.5	10
Sumner, Mo.	25	10	12	27.9	11
Brunswick, Mo.	12	Apr. 30	2	12.7	2
		11	13	15.1	12
Chariton: Novinger, Mo.	20	10	10	21.2	10
Lamine: Clifton City, Mo.	15	20	20	17.5	20
		30	31	23.0	31
Gasconade:					
Hazlegreen, Mo.	21	11	11	24.0	11
Jerome, Mo.	15	11	14	21.7	13
Missouri:					
Nebraska City, Nebr.	15	Apr. 19	Apr. 30	21.0	Apr. 28-29
		8	9	18.9	9
Brownsville, Nebr.	15	Apr. 19	Apr. 30	21.1	Apr. 28
		8	10	20.6	9
Rulo, Nebr.	17	Apr. 21	1	21.6	Apr. 30
		9	11	21.5	10
St. Joseph, Mo.	17	Apr. 25	1	19.0	Apr.30-May 1
		10	11	18.3	10
Atchison, Kans.	20	Apr. 24	2	23.3	1
		10	11	22.7	11
Lexington, Mo.	22	12	12	22.8	12
Waverly, Mo.	18	Apr. 29	2	18.9	1-2
		11	13	20.4	12

FLOOD STAGE REPORT

(All dates in May unless otherwise specified)

Table 5-Continued

MAY 1950

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
	Ft.			Ft.	
MISSISSIPPI SYSTEM (Cont'd.)					
Missouri Basin (Cont'd.)					
Missouri (Cont'd.):					
Boonville, Mo.	21	13	13	21.1	13
Hermann, Mo.	21	13	14	21.7	13
St. Charles, Mo.	25	Apr. 30	3	25.9	1
		12	15	26.6	14
Ohio Basin					
West Fork: Edwardsport, Ind.	12	1	3	12.5	1
		5	7	15.6	6
Wabash: Terre Haute, Ind.	14	Apr. 27	1	15.7	Apr. 29
Ohio: Cairo, Ill.	40	14	18	41.0	16
White Basin					
Black:					
Poplar Bluff, Mo.	16	12	12	16.7	12
Black Rock, Ark.	14	5	†	22.7	16
White:					
Beaver, Ark.	16	10	14	32.0	12
Forsyth, Mo.	20	11	14	38.8	11
Cotter, Ark.	21	11	15	37.0	13
Calico Rock, Ark.	19	12	16	38.2	13
Batesville, Ark.	23	12	17	36.7	14
Newport, Ark.	26	12	23	32.1	15
Augusta, Ark.	32	14	29	36.5	18
Georgetown, Ark.	21	14	†	28.9	19
Des Arc, Ark.	24	16	June 4	31.7	21
Clarendon, Ark.	26	9	†	31.5	25
St. Charles, Ark.	25	Jan. 7	Apr. 30	33.0	Jan. 27
				33.2	Feb. 25
		12	†	29.6	27
Arkansas Basin					
Bird Creek: Sperry, Okla.	21	11	12	26.7	11
		26	27	26.3	27
Verdigris: Inola, Okla.	41.5	11	13	43.3	12
Illinois:					
Tahlequah, Okla.	11	10	13	27.9	10
Gore, Okla.	15	10	13	30.2	11
Deep Fork: Bearden, Okla.	15	10	22	23.2	11
North Canadian: Wetumka, Okla.	14	11	12	16.2	12
Canadian:					
Calvin, Okla.	15	11	11	17.6	11
Whitefield, Okla.	16.5	11	13	20.0	11
Petit Jean: Danville, Ark.	20	8	9	22.9	8
Arkansas:					
Webbers Falls, Okla.	23	11	14	32.8	11
Fort Smith, Ark.	25	11	16	31.0	13
Van Buren, Ark.	22	11	16	30.9	13
Ozark, Ark.	22	12	15	27.5	13
Dardanelle, Ark.	22	12	16	29.3	14
Morrilton, Ark.	30	13	16	33.7	15
Red Basin					
Ouachita:					
Arkadelphia, Ark.	17	3	5	23.4	3
Camden, Ark.	26	5	18	34.4	11
Little:					
Horatio, Ark.	21	--	-	31.8	3
Whitecliffs, Ark.	25	3	10	28.2	4
Sulphur:					
Hagansport, Tex.	38	Apr. 30	8	41.4	3
		12	17	39.9	16
Naples, Tex.	22	2	24	29.1	7
				25.2	20
McCartney Bridge, Tex.	22	--	--	29.1	9
				23.7	25

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
	Ft.			Ft.	
MISSISSIPPI SYSTEM (Cont'd.)					
Red Basin (Cont'd.)					
Cypress: Jefferson, Tex.	18	6	15	23.1	7
				22.5	11
Red: Alexandria, La.	32	8	25	34.1	14
Lower Mississippi Basin					
St. Francis:					
Fisk, Mo.	20	11	24	23.6	15-17
St. Francis, Ark.	18	8	30	18.4	9
				21.1	20-21
Yazoo: Yazoo City, Miss.	29	Jan. 26	5	36.3	Mar. 14
				30.7	2
Atchafalaya Basin					
Atchafalaya:					
Atchafalaya, La.	25	Jan. 12	†	30.4	Mar. 5
				27.4	22-26
Morgan City, La.	**6	1	6	6.7	2
WEST GULF OF MEXICO DRAINAGE					
Calcasieu: Kinder, La.	16	2	5	19.0	[illegible]
Sabine:					
Mineola, Tex.	14	2	10	18.0	7
		15	20	17.2	17
Gladewater, Tex.	26	4	19	34.7	10
		21	25	28.6	23
Logansport, La.	25	19	25	25.8	22
Milam, Tex.	35	3	5	36.6	4
Bon Wier, Tex.	17	1	12	19.2	7
Elm Fork: Carrollton, Tex.	6	2	6	11.5	3
		13	14	7.7	14
East Fork: Rockwall, Tex.	10	2	9	19.8	3
		11	17	12.5	13
Trinity:					
Dallas, Tex.	28	2	10	38.1	[illegible]
		12	18	35.2	15
Rosser, Tex.	26	2	21	34.9	6
				31.1	17
Trinidad, Tex.	28	4	26	40.2	9
Long Lake, Tex.	40	13	19	41.8	14
Liberty, Tex.	24	Apr. 29	4	25.7	1
		13	†	26.1	23
GREAT SALT LAKE BASIN					
Weber:					
Gateway, Utah	6	16	25	7.4	23
Plain City, Utah	16	18	26	17.2	20
PACIFIC SLOPE DRAINAGE					
San Joaquin Basin					
Kings: Piedra, Calif.	10	30	30	10.1	30
		31	31	10.0	31
Columbia Basin					
Willamette: Portland, Oreg.	18	28	†	----	--
Columbia: Vancouver, Wash.	15	19	†	----	--

* Provisional.
† Continued at end of month.
‡ Highest stage of record.
** Stages influenced by wind and tide. Flood stage or higher reached intermittently.

RADIOSONDE DATA

Average monthly values

Table 20

MAY 1 950

Standard pressure surface (mb.)	ALBANY, N. Y. (1006 MB.)				ALBUQUERQUE, N. MEX. (833 MB.)				ATLANTA, GA. (982 MB.)				BIG SPRING, TEX. (922 MB.)				BISMARCK, N DAK (953 MB.)				BOISE, IDAHO (913 MB.)				BROWNSVILLE, TEX. (1010 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	86	12.3	74	31	1,620	20.1	19	31	300	21.1	75	31	784	21.0	59	31	505	10.4	67	31	868	14.8	44	31	6	26.1	82
1,000--	31	138	12.3	70	31	11			31	138			31	66			31	97			31	93			31	90	25 6	82
950----	31	567	11.2	63	31	477			31	588	21.5	65	31	520			31	531			31	540			31	550	22.9	81
900----	31	1,018	9.0	61	31	953			31	1,052	18.5	66	31	991	22.0	52	31	978	8.4	60	31	994	15.3	36	31	1,013	21.8	65
850----	31	1,489	6.2	62	31	1,447			31	1,540	15.0	68	31	1,486	19.8	48	31	1,447	5.2	64	31	1,475	11.9	36	31	1,508	20.1	52
800----	31	1,984	3.5	64	31	1,970	18.5	18	31	2,050	11.7	65	31	2,006	16.6	46	31	1,940	2.3	65	31	1,978	7.7	41	31	2,029	17.3	49
750----	31	2,511	0.8	61	31	2,525	14.1	19	31	2,594	7.9	65	31	2,556	13.0	40	31	2,468	- 0.5	68	31	2,510	3.3	46	31	2,584	14.4	43
700----	31	3,056	- 1.9	54	31	3,095	9.1	22	31	3,153	4.2	61	31	3,128	8.9	35	31	3,008	- 3.5	66	31	3,061	- 1.1	50	31	3,157	11.1	36
650----	31	3,651	- 4.5	45	31	3,707	3.6	27	31	3,755	0.7	55	31	3,734	4.1	35	31	3,600	- 6.8	61	31	3,651	- 4.9	48	31	3,772	7.0	39
600----	31	4,270	- 7.8	40	31	4,345	- 2.1	32	31	4,391	- 3.0	45	30	4,382	- 1.0	34	31	4,211	-10.5	54	31	4,273	- 9 0	44	31	4,423	2.1	40
550----	31	4,948	-11.9	[illegible]	30	5,030	- 8.1	40	31	5,077	- 7.3	40	30	5,068	- 6.5	38	31	4,885	-14.3	47	30	4,941	-13.6	41	31	5,117	- 3.0	41
500----	31	5,663	-17.1	35	30	5,761	-14.3	44	31	5,816	-11.8	33	30	5,807	-11.3	34	31	5,592	-19.1	45	30	5,657	-18.3	33	31	5,866	- 8 1	40
450----	31	6,448	-22.6		30	6,555	-20.5	44	31	6,613	-17.3	32	30	6,612	-16.8		30	6,377	-24.7	46	30	6,434	-24 0	32	31	6,679	-13.7	42
400----	31	7,300	-28.8		30	7,412	-26.5	38	31	7,480	-23.7	34	28	7,484	-23.3		30	7,215	-30.9	47	29	7,283	-30.6		31	7,562	-20 1	47
350----	31	8,240	-36.2		30	8,362	-33.6	35	31	8,441	-30.9	38	27	8,446	-31.1		30	8,148	-38.1		29	8,216	-38.0		30	8,540	-26.9	48
300----	30	9,288	-44.0		30	9,427	-41.3		30	9,516	-39.4		26	9,523	-39.2		30	9,191	-45.8		27	9,270	-44.9		29	9,633	-34.9	46
250----	30	10,487	-52.2		29	10,638	-50.0		30	10,738	-49.1		25	10,748	-48.6		30	10,386	-52.0		26	10,480	-51.6		28	10,881	-44.6	
200----	29	11,911	-58.9		24	12,074	-57.5		28	12,165	-59.6		24	12,189	-57.6		21	11,792	-53.0		22	11,904	-57.4		26	12,339	-56.2	
175----	27	12,748	-59.4		21	12,923	-57.3		26	12,988	-62.5		17	13,026	-61.0		19	12,652	-52.0		15	12,703	-55.7		23	13,183	-61.7	
150----	26	13,719	-58.1		18	13,905	-57.8		21	13,925	-61.8		12	13,970	-61.6		19	13,649	-51.6		12	13,657	-52.6		12	14,129	-66.8	
125----	20	14,882	-58.5		16	15,049	-58.8		17	15,061	-62.2		8	15,077	-61.5		16	14,830	-52.4		11	14,823	-53.3		5	15,235	-68.9	
100----	15	16,261	-58.9		14	16,440	-61.0		11	16,411	-63.6		5	16,456	-62.8		11	16,274	-53.7		7	16,271	-53.4					
80-----	7	17,671	-59.3		10	17,815	-61.9		5	17,782	-63.4						5	17,689	-53.0									

Standard pressure surface (mb.)	BUFFALO, N. Y. (989 MB.)				CAMAGUEY, CUBA (1002 MB.)				CARIBOU, MAINE (992 MB.)				CHARLESTON, S. C. (1015 MB.)				CIUDAD VICTORIA, MEX. (971 MB.)				COLUMBIA, MO. (985 MB.)				DODGE CITY, KANS. (921 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	221	12.2	71	30	122	22.5	86	31	191	9.4	60	31	18	20.2	87	29	335	29.7	58	31	239	18.4	69	30	792	16 1	64
1,000--	31	130			30	142	22.5	85	31	126			31	146	20 8	78	29	70			31	103			30	82		
950----	31	569	13.0	60	30	595	21.1	77	31	559	10.5	45	31	597	20.3	64	29	535	27.9	59	31	548	18.4	60	30	527		
900----	31	1,016	10.8	57	30	1,057	18.7	68	31	1,004	7.7	49	31	1,056	17.9	65	29	1,008	24.1	62	31	1,008	15.6	60	30	991	16.5	58
850----	31	1,490	8.2	59	30	1,546	16.0	62	31	1,472	4.2	54	31	1,543	14.7	65	29	1,506	20.3	65	31	1,491	12.7	59	30	1,476	14.3	53
800----	31	1,988	5.3	57	30	2,058	12.6	61	31	1,962	1.1	57	31	2,054	11.5	62	29	2,027	17.2	61	31	1,997	9.9	55	30	1,986	12.3	47
750----	31	2,520	2.5	54	30	2,603	9.7	55	31	2,484	- 2.0	54	31	2,598	8.0	61	29	2,583	14.5	55	31	2,536	7.0	50	30	2,526	9.0	40
700----	31	3,069	- 0.2	45	29	3,169	7.0	43	31	3,024	- 4.7	49	31	3,157	4.7	56	29	3,156	10.5	55	31	3,095	3.7	50	30	3,091	5.2	44
650----	31	3,662	- 3.1	38	28	3,782	4.0	42	31	3,611	- 7.6	44	31	3,763	1.3	50	29	3,777	6 8	48	31	3,698	0.1	45	30	3,691	0.8	40
600----	31	4,288	- 6.6	34	28	4,422	0.6	39	31	4,223	-10.8	43	31	4,398	- 2.3	47	28	4,423	2.1	49	31	4,330	- 4.0	43	30	4,329	- 4.1	40
550----	31	4,965	-10.8	32	28	5,116	- 3.1		31	4,891	-14.5	40	31	5,089	- 6.5	42	27	5,121	- 3.2	50	31	5,015	- 8.4	37	30	5,008	- 9.4	40
500----	31	5,688	-15.5	30	28	5,864	- 7.9		31	5,603	-18.9	40	31	5,823	-11.4	45	27	5,868	- 8.3	47	31	5,744	-13.5	34	30	5,737	-14.8	35
450----	31	6,476	-21.1	31	27	6,680	-13.3		31	6,384	-24.3	41	31	6,629	-16.7	41	27	6,686	-14.0	45	31	6,542	-19.1	33	30	6,527	-20.5	
400----	31	7,335	-27.8	33	27	7,562	-19.5		31	7,229	-30.1	41	31	7,499	-23.0	38	27	7,563	-20.4	40	31	7,402	-25.5	36	30	7,387	-27.0	
350----	31	8,279	-35.1		27	8,541	-26.8		31	8,166	-36.9		31	8,463	-30.1	39	25	8,538	-27.2	41	31	8,356	-32.8	36	29	8,334	-34.2	
300----	31	9,336	-42.9		27	9,636	-35.2		31	9,216	-44.5		31	9,541	-38.6		23	9,631	-35.5		31	9,422	-41.1		29	9,394	-42.2	
250----	30	10,548	-50.8		27	10,880	-45.3		30	10,418	-51.5		31	10,766	-48.7		22	10,875	-45.5		31	10,637	-50.2		29	10,603	-51.0	
200----	27	11,970	-57.8		27	12,332	-56.5		28	11,862	-56.1		30	12,202	-59.0		21	12,330	-57.4		31	12,062	-59.2		28	12,023	-58.7	
175----	22	12,806	-58.1		27	13,168	-62.4		23	12,703	-54.5		28	13,031	-62.1		21	13,161	-63.3		29	12,893	-60.6		25	12,857	-59.1	
150----	16	13,759	-56.7		26	14,110	-67.8		19	13,705	-53.4		24	13,991	-62.3		21	14,096	-68.7		26	13,856	-59.3		23	13,820	-58.1	
125----	14	14,921	-56.8		21	15,195	-70.9		14	14,894	-53.0		18	15,122	-64.8		21	15,180	-70.9		21	14,994	-59.7		18	14,975	-58.7	
100----	9	16,336	-57.7		17	16,503	-74.8		11	16,340	-53.5		12	16,500	-66.3		12	16,504	-73.1		15	16,381	-60.9		10	16,368	-59.7	
80-----	7	17,754	-56.3		11	17,799	-73.1		11	17,774	-53.2		5	17,859	-66.0		9	17,826	-71.3		8	17,759	-59.7		6	17,749	-60.7	
50-----	6	19,599	-54.6		7	19,506	-65.8																					

Standard pressure surface (mb.)	EL PASO, TEX. (878 MB.)				ELY, NEV. (807 MB.)				GLASGOW, MONT. (937 MB.)				GRAND JUNCTION, COLO (848 MB.)				GREAT FALLS, MONT. (885 MB)				GREENSBORO, N C. (985 MB)				HATTERAS, N. C. (1017 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	1,195	24.0	15	31	1,908	10.7	45	31	648	12.0	49	31	1,474	16.2	29	31	1,128	10.5	48	31	273	17 7	85	31	3	18 9	88
1,000--	31	34			31	74			31	92			31	39			31	92			31	142			31	144	18.8	84
950----	31	500			31	521			31	530			31	498			31	534			31	588	18.4	71	31	590	17 3	71
900----	31	980			31	984			31	981	10.4	46	31	964			31	990			31	1,047	16.3	68	31	1,045	15.2	64
850----	31	1,473	23.2		31	1,467			31	1,454	6.8	48	31	1,450			31	1,462	8.7	46	31	1,532	13.4	68	31	1,528	12.6	59
800----	31	1,996	18.7		31	1,979	12.6	36	31	1,948	2.8	53	31	1,965	14.4	26	31	1,960	4.6	50	31	2,040	10.3	70	31	2,034	9 4	62
750----	31	2,546	13.9	19	31	2,517	7.6	38	31	2,473	- 1.1	56	31	2,508	9.8	30	31	2,486	0.3	55	31	2,578	7.1	66	31	2,575	6.6	55
700----	31	3,120	8.9	24	31	3,078	2.8	42	31	3,014	- 4.8	55	31	3,074	4.8	35	31	3,030	- 4.4	62	31	3,138	3.7	63	31	3,131	3 8	51
650----	31	3,731	3.8	28	31	3,676	- 2.2	49	31	3,601	- 8.9	52	31	3,676	- 0.6	42	31	3,616	- 8.9	65	31	3,737	- 0.0	56	31	3,735	0.1	50
600----	31	4,372	- 1.6	34	31	4,303	- 7.3	52	31	4,207	-12.7	48	31	4,305	- 6.1	48	31	4,224	-13.0	59	31	4,374	- 3.4	48	31	4,367	- 3.4	43
550----	31	5,059	- 6.8	36	31	4,978	-12.4	52	31	4,870	-16.9	44	30	4,983	-11.9	51	31	4,888	-17.2	47	30	5,054	- 7 5	47	30	5,053	- 7.4	40
500----	29	5,796	-12.2		31	5,696	-17.6	51	31	5,575	-21.7	42	30	5,700	-17.8	52	31	5,589	-22.3	44	30	5,792	-12.1	44	30	5,786	-12 1	41
450----	28	6,596	-17.9		31	6,479	-23.4	47	31	6,345	-27.2	41	30	6,482	-23.6	44	31	6,359	-27.7	41	30	6,596	-17.5	41	30	6,592	-17 3	35
400----	26	7,461	-24.5		31	7,326	-29.8	42	31	7,181	-33.1	45	28	7,328	-29.7	39	31	7,191	-33.8	43	30	7,464	-23.7	42	29	7,455	-23 7	36
350----	26	8,419	-31.7		31	8,263	-36.8	35	31	8,107	-39.7		28	8,266	-36.5		31	8,113	-40.7		30	8,425	-31.0	42	29	8,415	-30.9	37
300----	25	9,490	-39.8		31	9,313	-44.1		31	9,142	-47.7		28	9,317	-44.2		31	9,146	-47.6		30	9,499	-39.6		28	9,490	-39.2	
250----	24	10,710	-49.2		31	10,513	-52.1		29	10,320	-53.2		26	10,508	-52.0		30	10,335	-52.6		29	10,720	-49.6		28	10,712	-49.1	
200----	17	12,143	-58.1		29	11,938	-57.5		23	11,762	-53.7		23	11,931	-56.9		23	11,757	-54.8		28	12,149	-59.8		28	12,142	-59.1	
175----	12	12,978	-60.7		22	12,748	-56.1		21	12,623	-53.6		22	12,785	-57.1		21	12,625	-54.5		27	12,968	-63.2		27	12,968	-61.8	
150----	9	13,937	-60.3		20	13,720	-55.2		18	13,620	-52.8		20	13,761	-55.8		20	13,606	-53.1		20	13,927	-61.5		26	13,924	-61.6	
125----	7	15,077	-61.6		16	14,879	-55.9		15	14,788	-53.4		15	14,910	-56.5		15	14,807	-54.8		17	15,058	-61.7		26	15,056	-60.8	
100----	7	16,452	-63.2		8	16,291	-56.9		12	16,207	-53.8		13	16,332	-58.1		13	16,225	-55.2		16	16,426	-62.6		22	16,439	-61.6	
80-----	6	17,808	-65.0						7	17,650	-55.0		7	17,760	-59.4		5	17,682	-55.6		12	17,803	-62.2		14	17,814	-60.0	

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb)	HAVANA, CUBA. (1010 MB.)				HONOLULU, T. H. (1017 MB.)				INTERNAT. FALLS, MINN. (970 MB.)				JOLIET, ILL. (993 MB.)				LAKE CHARLES, LA. (1013 MB.)				LANDER, WYO. (827 MB.)				LAS VEGAS, NEV. (932 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	49	24.4	82	31	3	25.3	64	31	361	7.6	72	29	179	12.9	72	31	5	23.1	86	31	1,696	8.2	57	31	660	25.1	12
1,000--	30	136	24.3	80	3·	148	23.3	67	31	106			29	118			31	114	23.5	81	31	92			31	32		
950----	30	591	22.1	73	31	596	19.7	74	31	535	8.7	63	29	556	14.8	57	31	565	21.1	77	31	535			31	492		
900----	30	1,054	19.8	65	31	1,057	16.4	78	31	977	6.2	64	29	1,009	12.6	58	31	1,029	18.7	71	31	993			31	964	24.5	
850----	30	1,545	16.7	65	31	1,543	13.7	75	31	1,443	3.6	68	29	1,487	10.1	57	31	1,518	16.0	63	31	1,465			31	1,460	20.0	
800----	30	2,059	13.6	60	31	2,052	11.8	59	31	1,933	1.4	67	29	1,989	7.7	58	31	2,031	13.2	55	31	1,970	8.0	49	31	1,977	15.3	18
750----	30	2,602	11.0	51	31	2,596	10.0	37	31	2,459	- 1.0	59	29	2,525	4.8	54	31	2,578	10.7	41	31	2,504	3.8	53	31	2,522	10.4	21
700----	30	3,174	8.2	44	31	3,162	7.2	27	31	2,999	- 3.9	55	29	3,079	1.7	45	31	3,143	7.5	35	31	3,054	- 0.6	55	31	3,087	5.3	26
650----	30	3,789	5.1	36	31	3,774	3.8	26	31	3,589	- 6.8	48	29	3,677	- 2.0	43	31	3,752	3.9	31	31	3,645	- 5.0	58	31	3,688	- 0.1	32
600----	30	4,432	1.6	32	31	4,415	0.1	28	31	4,202	-10.1	44	29	4,304	- 5.9	43	31	4,395	- 0.1	32	31	4,266	- 9.6	58	30	4,320	- 5.6	37
550----	30	5,132	- 2.3	28	29	5,110	- 4.2		31	4,871	-14.1	43	29	4,985	- 9.8	40	31	5,088	- 5.0	33	31	4,938	-14.1	50	30	5,000	-10.5	34
500----	30	5,878	- 6.8		29	5,852	- 9.2		31	5,584	-18.8	41	29	5,710	-14.6	36	30	5,826	-10.2	32	31	5,648	-19.0	41	30	5,723	-15.6	31
450----	30	6,698	-12.3		29	6,668	-14.8		31	6,363	-24.4	42	29	6,506	-20.1	34	29	6,635	-16.0	34	31	6,428	-24.9	40	30	6,511	-21.1	30
400----	30	7,582	-18.8		29	7,541	-21.6		31	7,207	-30.9	42	29	7,364	-26.3		28	7,511	-22.3		31	7,269	-31.3	41	30	7,369	-27.7	
350----	30	8,562	-26.4		28	8,512	-29.2		31	8,141	-37.5		29	8,315	-33.6		28	8,478	-29.9		31	8,200	-38.6		30	8,313	-35.2	
300----	30	9,656	-34.9		28	9,596	-37.4		31	9,188	-44.7		28	9,384	-41.7		28	9,558	-38.1		30	9,246	-46.1		30	9,368	-43.4	
250----	29	10,900	-44.6		28	10,830	-47.0		28	10,398	-51.9		27	10,597	-51.2		27	10,787	-47.8		30	10,441	-51.9		30	10,573	-51.5	
200----	27	12,360	-55.7		28	12,272	-57.7		23	11,841	-56.7		26	12,013	-59.3		24	12,229	-58.2		30	11,872	-55.1		29	11,992	-57.5	
175----	24	13,191	-61.8		28	13,105	-62.6		20	12,678	-54.4		22	12,846	-60.6		22	13,064	-63.0		26	12,701	-54.3		26	12,828	-57.5	
150----	21	14,135	-66.9		27	14,047	-65.9		15	13,672	-53.4		15	13,793	-57.9		22	14,008	-65.4		23	13,680	-53.3		25	13,802	-57.7	
125----	17	15,219	-70.2		26	15,151	-66.9		11	14,834	-54.0		12	14,924	-57.2		13	15,104	-66.5		17	14,844	-54.3		23	14,951	-58.8	
100----	14	16,542	-72.2		23	16,493	-68.7		6	16,292	-55.3		8	16,302	-57.8		11	16,452	-67.7		13	16,257	-55.5		18	16,350	-61.2	
80-----	10	17,849	-71.1		15	17,832	-67.4						5	17,716	-58.1		7	17,781	-67.9		8	17,680	-56.3		10	17,759	-60.9	
60-----					9	19,594	-62.9														5	19,521	-56.7		7	19,565	-58.4	
50-----					5	20,734	-60.0																		6	20,701	-56.9	

Standard pressure surface (mb)	LITTLE ROCK, ARK. (1004 MB.)				MAZATLAN, MEXICO (1008 MB.)				MEDFORD, ORE. (969 MB.)				MERIDA, MEXICO (1008 MB.)				MIAMI, FLA. (1016 MB.)				NANTUCKET, MASS. (1016 MB.)				NASHVILLE, TENN. (994 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	79	20.7	78	31	14	25.5	75	31	401	17.2	44	28	27	27.5	63	31	4	24.3	75	31	14	8.4	91	31	177	19.9	83
1,000--	31	110			31	81	24.9	74	31	134			28	99	27.7	63	31	146	24.0	74	31	144	9.9	82	31	124		
950----	31	558	20.4	69	31	536	24.8	39	31	577	16.4	42	28	554	25.5	60	31	596	21.0	75	31	572	10.8	64	31	569	19.8	58
900----	31	1,021	17.8	70	31	1,005	24.1	33	31	1,030	12.9	46	28	1,027	22.4	65	31	1,060	18.4	67	31	1,022	9.8	56	31	1,033	17.1	67
850----	31	1,508	14.8	67	31	1,502	21.6	35	31	1,507	9.2	52	28	1,522	19.0	67	31	1,549	15.6	61	31	1,495	8.0	51	31	1,519	14.0	67
800----	31	2,019	12.4	57	31	2,025	19.0	31	31	2,007	5.7	58	28	2,040	15.5	68	31	2,061	12.8	53	31	1,994	5.9	50	31	2,028	10.8	63
750----	31	2,562	9.3	52	31	2,585	15.7	30	31	2,537	2.4	53	28	2,592	12.0	00	31	2,605	9.8	49	31	2,525	3.3	49	31	2,568	7.5	59
700----	31	3,127	5.8	45	31	3,157	11.7	32	31	3,086	- 1.0	48	27	3,160	9.5	44	31	3,170	6.9	42	31	3,076	0.2	51	31	3,128	4.0	53
650----	31	3,732	2.0	43	31	3,778	7.5	32	31	3,679	- 4.3	41	26	3,780	6.2	37	31	3,783	3.9	42	31	3,671	- 3.1	49	31	3,730	0.5	45
600----	31	4,371	- 2.0	38	29	4,425	2.6	34	31	4,300	- 8.1	37	26	4,423	2.5	34	31	4,422	0.3	37	31	4,296	- 6.6	47	31	4,365	- 3.4	41
550----	31	5,056	- 6.9	38	28	5,117	- 2.5	35	31	4,971	-12.3	37	24	5,121	- 1.9		31	5,120	- 3.8	35	31	4,975	-10.5	44	31	5,049	- 7.7	39
500----	30	5,793	-11.9	35	25	5,870	- 7.8		31	5,693	-17.0	33	24	5,872	- 6.7		31	5,860	- 8.4	34	31	5,697	-15.3	41	31	5,782	-12.6	38
450----	30	6,596	-17.5	33	24	6,691	-13.1		31	6,479	-22.8	32	22	6,690	-12.3		31	6,676	-13.7	32	31	6,486	-20.6	40	31	6,582	-18.1	41
400----	29	7,461	-24.2		24	7,568	-19.5		31	7,327	-29.4	32	18	7,579	-19.0		31	7,554	-20.1	30	31	7,345	-26.7	41	31	7,448	-24.6	41
350----	29	8,421	-31.6		21	8,543	-26.8		31	8,267	-36.5		16	8,557	-26.3		31	8,529	-27.3		30	8,299	-33.8	42	31	8,406	-31.9	44
300----	28	9,490	-40.3		21	9,635	-35.0		31	9,318	-43.7		14	9,655	-34.4		31	9,619	-35.7		30	9,361	-41.8		30	9,479	-40.1	
250----	27	10,702	-49.9		16	10,883	-44.6		31	10,523	-51.5		11	10,907	-44.7		31	10,860	-45.3		30	10,571	-51.1		29	10,694	-49.7	
200----	22	12,139	-58.6		15	12,343	-56.0		29	11,937	-58.3		9	12,353	-56.9		31	12,311	-56.2		27	11,994	-59.2		25	12,126	-59.1	
175----	19	12,970	-60.6		15	13,178	-62.5		22	12,795	-59.4		6	13,195	-63.3		28	13,144	-61.1		24	12,832	-59.1		21	12,962	-62.0	
150----	17	13,924	-61.7		15	14,114	-68.5		18	13,728	-57.2		6	14,127	-69.4		21	14,094	-64.9		19	13,805	-58.4		13	13,915	-61.3	
125----	15	15,054	-61.9		13	15,203	-71.5		14	14,898	-57.3		5	15,197	-72.8		13	15,189	-67.5		14	14,958	-58.1		7	15,031	-62.4	
100----	8	16,410	-64.5		13	16,517	-72.4		9	16,289	-57.2						6	16,490	-68.9		9	16,350	-57.9					
80-----					10	17,839	-73.2		6	17,730	-56.4																	
60-----					8	19,549	-65.1																					
50-----					5	20,673	-61.9																					

Standard pressure surface (mb)	NEW ORLEANS, LA. (1015 MB.)				NORTH PLATTE, NEBR. (915 MB.)				OAKLAND, CALIF. (1014 MB.)				OKLAHOMA CITY, OKLA. (966 MB.)				OMAHA, NEBR. (976 MB.)				PHOENIX, ARIZ. (969 MB.)				PITTSBURGH, PA. (971 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	2	23.2	85	31	849	12.6	67	31	6	13.3	74	31	391	19.5	76	29	308	16.9	65	31	338	26.0	17	31	382	15.1	71
1,000--	31	130	23.5	81	31	88			31	126	12.6	72	31	87			29	98			31	53			31	129		
950----	31	581	21.3	75	31	530			31	565	14.2	56	31	536	19.9	69	29	541	16.0	58	31	511	28.1	14	31	576	15.4	66
900----	31	1,046	18.7	68	31	984	13.7	58	31	1,015	15.2	35	31	998	17.6	69	29	995	13.5	61	31	986	24.3	15	31	1,024	13.3	61
850----	31	1,535	16.3	59	31	1,464	11.3	54	31	1,497	12.9	29	31	1,485	15.5	65	29	1,474	10.4	64	31	1,481	20.0	16	31	1,503	10.6	60
800----	31	2,048	13.3	54	31	1,968	8.3	55	31	2,003	9.9	27	31	1,998	13.2	56	29	1,977	7.8	60	31	1,998	15.3	19	31	2,006	7.7	57
750----	31	2,592	10.1	47	31	2,503	4.9	58	31	2,542	6.6	28	31	2,546	10.3	44	29	2,512	4.9	55	31	2,543	10.5	23	31	2,543	4.5	55
700----	31	3,160	7.2	40	31	3,057	1.3	59	31	3,098	3.0	26	31	3,109	6.8	37	29	3,067	1.1	58	31	3,108	5.8	26	31	3,094	1.3	54
650----	31	3,769	3.7	36	31	3,655	-2.7	59	31	3,697	- 1.1	26	30	3,717	2.7	40	29	3,663	- 2.7	52	31	3,715	1.3	27	31	3,692	- 1.9	53
600----	30	4,411	- 0.3	34	31	4,279	- 6.9	57	31	4,327	- 5.5	27	30	4,355	- 2.2	39	29	4,290	- 6.5	44	31	4,348	- 3.2	25	31	4,319	- 5.4	47
550----	29	5,103	- 4.7	34	29	4,953	-11.8	54	31	5,007	- 9.9	25	29	5,041	- 7.3	38	29	4,967	-10.8		31	5,031	- 7.8		31	5,004	- 9.4	41
500----	26	5,842	-10.0	35	29	5,671	-16.9	49	31	5,732	-14.8	25	29	5,774	-12.6	41	29	5,691	-15.5		30	5,762	-13.4		31	5,726	-14.3	38
450----	25	6,651	-15.3		29	6,455	-22.6	46	31	6,525	-20.6		29	6,574	-18.5	37	29	6,479	-21.2		30	6,557	-19.4		31	6,520	-19.8	36
400----	24	7,522	-21.8	35	27	7,307	-29.0	43	31	7,382	-27.2		29	7,437	-25.0	35	29	7,338	-27.4	34	30	7,419	-26.0		30	7,380	-26.2	41
350----	23	8,495	-29.0		27	8,248	-35.8		31	8,329	-34.6		29	8,393	-32.1		29	8,285	-34.6		30	8,371	-33.2		30	8,331	-33.3	41
300----	23	9,574	-37.3		26	9,306	-43.5		31	9,389	-42.5		29	9,462	-40.4		29	9,344	-42.7		30	9,436	-40.8		30	9,395	-41.6	
250----	23	10,806	-47.4		26	10,510	-51.6		31	10,597	-51.5		28	10,681	-49.6		29	10,552	-51.6		30	10,651	-49.7		29	10,614	-50.8	
200----	22	12,241	-57.5		24	11,941	-57.1		29	12,028	-59.6		28	12,112	-58.4		27	11,970	-58.9		30	12,082	-57.5		27	12,035	-60.0	
175----	20	13,075	-61.8		22	12,779	-56.8		25	12,857	-60.2		22	12,954	-60.9		24	12,804	-57.9		28	12,927	-58.2		27	12,865	-61.3	
150----	16	14,016	-65.2		19	13,763	-55.2		23	13,811	-58.9		16	13,914	-61.0		20	13,778	-56.2		24	13,895	-58.3		27	13,825	-59.4	
125----	13	15,125	-66.6		14	14,924	-56.2		18	14,934	-58.3		9	15,039	-61.9		13	14,919	-57.1		21	15,040	-59.2		26	14,971	-59.0	
100----	11	16,462	-67.8		11	16,338	-58.3		13	16,328	-59.9		7	16,413	-64.7		7	16,339	-57.7		16	16,424	-61.8		25	16,366	-60.0	
80-----	5	17,828	-70.3		6	17,704	-59.3		8	17,713	-59.2										12	17,812	-62.5		21	17,763	-59.9	
60-----									5	19,519	-56.9										7	19,622	-58.5		8	19,571	-57.4	
50-----																					5	20,784	-56.1					

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

MAY 1950

Standard pressure surface (mb.)	PORTLAND, MAINE. (1015 MB.)				RAPID CITY, S. DAK. (901 MB.)				ST. CLOUD, MINN. (975 MB.)				SAN ANTONIO, TEX. (983 MB.)				SAN JUAN, P. R. (1014 MB.)				SANTA MARIA, CALIF (1007 MB.)				S.STE. MARIE, MICH. (989 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	20	9.4	79	31	980	8.2	72	31	317	10.6	72	31	240	23.8	75	31	19	24.5	85	31	71	11.8	82	31	221	6.7	79
1,000--	31	143	10.6	67	31	103			31	101			31	93			31	144	23.7	84	31	127	11.5	81	31	126		
950----	31	572	10.3	55	31	539			31	537	11.5	61	31	547	23.1	73	31	596	20.7	83	31	561	11.3	74	31	556	9.2	59
900----	31	1,019	8.5	49	31	988			31	983	9.2	61	31	1,015	20.5	75	31	1,058	17.7	81	31	1,010	14.5	46	31	997	7.3	57
850----	31	1,489	5.6	54	31	1,462	8.5	56	31	1,454	6.4	63	31	1,508	18.1	71	31	1,546	15.2	77	31	1,493	13.8	37	31	1,465	5.1	60
800----	31	1,982	3.1	54	31	1,960	5.2	58	31	1,950	3.9	61	31	2,026	16.0	54	31	2,059	12.8	69	31	2,001	10.6	35	31	1,958	2.3	63
750----	31	2,510	0.5	50	31	2,492	1.9	61	31	2,480	1.2	59	31	2,578	13.9	35	31	2,608	10.7	57	31	2,539	7.1	37	31	2,481	- 0.1	57
700----	31	3,054	- 1.9	47	31	3,037	- 1.5	62	31	3,025	- 1.5	55	31	3,152	10.5	30	31	3,172	8.2	45	31	3,098	3.5	33	31	3,027	- 2.8	53
650----	31	3,643	- 5.0	43	31	3,631	- 5.2	61	31	3,617	- 4.7	52	31	3,770	6.1	34	31	3,785	4.9	38	31	3,697	- 0.5	33	31	3,619	- 5.4	45
600----	31	4,265	- 8.4	41	31	4,248	- 8.9	54	31	4,238	- 8.5	49	31	4,415	1.1	39	29	4,430	1.3	35	31	4,331	- 4.6	29	31	4,236	- 8.8	43
550----	31	4,936	-12.5	38	31	4,921	-13.2	48	31	4,914	-12.7	44	31	5,108	- 4.1	41	29	5,131	- 2.2	30	31	5,013	- 9.0	27	31	4,909	-13.2	44
500----	31	5,656	-17.3	35	30	5,639	-18.1	46	31	5,629	-17.5	42	31	5,854	- 9.1	38	29	5,877	- 6.7	29	31	5,742	-14.0	25	31	5,624	-17.9	42
450----	30	6,442	-22.9		30	6,421	-23.5	40	31	6,415	-22.7	38	31	6,668	-14.5	38	29	6,698	-12.0		31	6,536	-19.9		31	6,411	-23.4	38
400----	30	7,291	-28.7		30	7,269	-29.9	38	31	7,264	-29.1	40	31	7,545	-21.4	46	29	7,584	-18.1	27	30	7,390	-26.7		31	7,257	-29.7	37
350----	29	8,230	-36.1		29	8,210	-36.9		30	8,198	-35.6	41	31	8,516	-28.4	43	29	8,568	-24.8		30	8,340	-33.8		31	8,194	-37.0	
300----	29	9,281	-44.2		29	9,259	-44.7		30	9,255	-42.6		31	9,602	-36.7	45	28	9,670	-33.2		30	9,402	-41.9		31	9,242	-44.8	
250----	29	10,479	-53.2		29	10,457	-52.1		29	10,469	-50.4		31	10,838	-46.4		28	10,926	-43.1		30	10,612	-50.9		30	10,440	-52.5	
200----	21	11,916	-59.5		27	11,876	-55.0		27	11,902	-55.1		30	12,283	-57.0		28	12,392	-55.2		28	12,036	-58.6		28	11,860	-56.6	
175----	18	12,745	-58.6		24	12,728	-53.6		24	12,760	-54.6		28	13,117	-62.2		26	13,233	-59.6		23	12,865	-59.0		23	12,703	-55.1	
150----	17	13,719	-57.5		19	13,716	-53.0		22	13,745	-53.1		16	14,072	-65.6		24	14,172	-68.5		18	13,818	-57.1		23	13,686	-54.7	
125----	11	14,867	-57.1		15	14,900	-53.8		17	14,920	-53.2		11	15,167	-66.7		21	15,242	-73.0		12	14,935	-58.2		17	14,855	-55.2	
100----	10	16,287	-57.5		10	16,322	-55.7		12	16,354	-54.8		6	16,489	-67.6		15	16,542	-75.0		9	16,335	-59.8		13	16,272	-56.5	
80-----	7	17,731	-57.6						9	17,760	-55.4						8	17,830	-71.9									
60-----									8	19,622	-52.8																	

Standard pressure surface (mb.)	SPOKANE, WASH. (931 MB.)				SWAN ISLAND, W. I. (1012 MB.)				TACUBAYA, MEXICO (774 MB.)				TAMPA, FLA. (1016 MB.)				TATOOSH ISLAND, WASH. (1016 MB.)				TOLEDO, OHIO (993 MB.)				WASHINGTON, D. C. (1014 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	722	13.5	45	31	10	26.1	79	9	2,306	18.6		31	9	23.5	78	31	31	8.6	85	29	191	13.4	75	31	25	16.6	77
1,000--	31	109			31	116	25.3	80	9	44			31	144	23.5	75	31	164	8.0	82	29	127			31	145	16.1	73
950----	31	547			31	570	22.0	81	9	510			31	597	21.8	64	31	589	5.9	75	29	566	14.5	59	31	585	14.3	70
900----	31	1,002	12.1	41	31	1,035	19.8	70	9	989			31	1,060	18.7	66	31	1,028	4.2	69	29	1,018	12.3	60	31	1,036	12.7	66
850----	31	1,478	8.2	45	31	1,526	17.3	62	9	1,489			31	1,548	15.3	67	31	1,492	2.1	66	29	1,495	9.4	59	31	1,514	10.3	66
800----	31	1,974	3.9	52	31	2,042	14.6	53	9	2,021			31	2,060	12.0	63	31	1,979	- 0.1	58	29	1,996	6.9	56	31	2,016	7.2	64
750----	31	2,499	- 0.4	55	31	2,580	12.3	46	9	2,580	16.8		31	2,604	9.1	53	31	2,500	- 2.9	53	29	2,526	4.0	53	31	2,554	4.0	65
700----	31	3,043	- 4.5	56	31	3,161	9.3	40	9	3,160	12.4		31	3,168	6.3	43	31	3,037	- 5.8	51	29	3,081	0.8	47	31	3,103	1.1	62
650----	31	3,629	- 8.2	53	31	3,776	5.9	36	9	3,782	7.5		31	3,775	3.1	35	31	3,622	- 8.7	50	29	3,679	- 2.3	39	31	3,701	- 2.1	53
600----	31	4,240	-12.1	51	31	4,423	2.2	33	9	4,432	2.5		31	4,416	- 0.8	33	31	4,231	-11.8	50	29	4,305	- 5.8		31	4,329	- 5.7	52
550----	30	4,902	-16.2	49	31	5,121	- 1.8		7	5,137	- 2.5		31	5,110	- 4.8	34	31	4,898	-15.4	51	29	4,984	-10.1		31	5,007	- 9.8	48
500----	30	5,608	-20.7	47	31	5,873	- 6.3		7	5,883	- 7.2		29	5,849	- 9.4	33	31	5,607	-19.9	49	29	5,709	-15.0		31	5,735	-14.6	43
450----	29	6,390	-25.7	47	31	6,695	-11.4		7	6,707	-11.7		29	6,663	-15.2		31	6,386	-24.9	45	29	6,500	-20.7		31	6,526	-20.2	38
400----	29	7,229	-32.2	45	31	7,581	-17.9		7	7,593	-17.2		29	7,534	-21.6		31	7,228	-30.8	43	28	7,360	-27.1		31	7,386	-26.5	35
350----	29	8,157	-39.3		31	8,565	-24.8		7	8,579	-24.9		29	8,504	-28.8		31	8,161	-37.9		28	8,308	-34.5		31	8,336	-33.7	38
300----	28	9,205	-46.0		31	9,667	-33.3		7	9,683	-32.8		29	9,588	-37.3		31	9,206	-45.0		27	9,363	-42.4		31	9,399	-41.7	
250----	26	10,417	-51.9		31	10,920	-43.3						29	10,822	-46.8		29	10,427	-52.3		27	10,571	-51.5		31	10,609	-51.0	
200----	21	11,833	-56.0		31	12,385	-55.3						29	12,266	-57.2		29	11,849	-57.4		26	11,990	-60.1		30	12,037	-60.1	
175----	17	12,685	-54.7		31	13,223	-61.8						29	13,101	-61.4		25	12,694	-57.1		23	12,823	-60.0		30	12,865	-61.6	
150----	14	13,649	-51.8		31	14,161	-68.5						28	14,047	-64.7		25	13,672	-55.2		19	13,783	-58.4		28	13,822	-60.7	
125----	13	14,818	-52.6		30	15,241	-73.8						27	15,153	-66.4		23	14,828	-54.4		14	14,914	-57.7		23	14,964	-60.8	
100----					27	16,530	-77.0						23	16,495	-68.3		19	16,254	-54.6		12	16,329	-59.5		22	16,351	-61.2	
80-----					20	17,807	-75.5						20	17,826	-69.1		10	17,654	-54.3		6	17,714	-59.5		18	17,732	-61.5	
60-----					16	19,502	-66.1						16	19,564	-63.3		5	19,518	-53.5						9	19,532	-58.9	
50-----													9	20,694	-60.0										5	20,685	-56.8	

Note: All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

Table 21 — MAY 1950

Altitude (meters) m s l	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	60	157	3.3	31	241	3.4	31	245	1.5	38	297	4.0	25	297	3.7	31	321	5.3	31	138	8.0	31	271	1.3	30	235	2.1	28	172	2.5	31	207	0.9	30	246	3.7
500	--	---	---	--	---	---	31	245	1.8	--	---	---	--	---	---	--	---	---	--	---	---	31	152	8.8	31	263	2.1	30	219	3.3	28	205	3.3	31	201	1.4	--	---	---
1,000	60	168	5.0	--	---	---	29	249	3.4	--	---	---	25	292	4.4	31	316	5.3	30	172	7.0	31	246	3.5	29	219	3.8	28	256	2.9	30	236	2.6	--	---	---
1,500	30	189	5.2	--	---	---	29	254	3.9	28	289	4.8	24	285	5.1	31	313	4.8	25	180	5.6	30	258	4.8	26	242	4.1	27	281	3.7	30	254	4.5	30	245	5.3
2,000	29	216	4.9	31	246	5.1	27	263	4.8	27	276	4.5	20	281	6.8	31	304	5.0	22	180	4.8	26	268	5.8	23	252	5.3	27	295	4.6	27	264	6.7	30	242	5.6
2,500	23	236	6.5	31	247	5.7	24	266	5.2	26	278	5.6	18	280	6.9	30	302	5.5	18	182	3.8	20	272	5.4	22	257	6.6	26	289	5.6	26	269	7.7	30	245	5.4
3,000	21	242	7.4	30	241	5.1	21	276	5.3	22	278	6.7	16	282	8.6	29	293	6.2	15	201	2.2	17	285	6.9	19	271	6.9	24	288	6.5	23	273	8.2	30	246	6.8
4,000	18	257	8.2	29	255	7.6	20	275	6.3	14	286	8.6	11	280	10.5	27	294	9.0	14	265	2.5	16	290	9.7	16	277	9.3	23	288	6.6	17	281	9.0	30	254	8.9
5,000	17	269	9.2	29	255	11.3	16	279	6.5	12	298	11.6				24	289	10.1	11	274	4.4	15	286	13.1	11	269	8.8	22	284	7.4	16	285	9.9	30	258	11.6
6,000	17	271	12.0	28	259	14.1	15	277	8.2	10	302	11.3				23	291	12.7	10	287	7.4	13	286	12.5				18	286	7.9	15	284	11.4	24	256	15.4
8,000	10	275	16.2	23	259	18.3										11	319	15.5										13	297	7.2				17	263	22.5
10,000				19	258	20.5																												12	260	26.4
12,000				11	251	18.1																														

Altitude (meters) m s l	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jackson-ville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	290	2.1	31	274	3.2	29	215	1.5	30	286	3.0	31	94	3.0	31	217	1.2	31	213	1.4	27	200	1.9	31	302	2.2	31	127	3.7	31	189	5.4	29	218	0.8
500	--	---	---	--	---	---	29	232	1.8	--	---	---	31	148	1.6	31	229	2.1	--	---	---	27	220	3.1	31	301	2.2	31	122	3.9	31	200	4.9	29	226	1.9
1,000	--	---	---	--	---	---	29	253	2.6	30	284	4.2	29	248	2.0	31	234	3.4	31	211	1.4	26	227	4.1	31	313	2.4	31	114	1.9	29	219	3.9	29	238	3.5
1,500	--	---	---	31	273	3.1	29	278	3.9	30	290	4.4	26	260	3.7	29	251	4.7	31	225	1.9	24	238	5.6	29	328	2.3	29	57	1.3	23	245	2.4	27	257	4.5
2,000	30	284	2.2	31	263	3.1	27	291	6.5	29	281	5.5	26	273	3.7	27	260	7.0	31	233	2.5	23	246	5.8	26	354	1.8	25	341	1.4	19	249	3.1	24	263	5.0
2,500	30	290	3.2	31	252	4.0	25	301	8.0	27	277	7.1	23	280	3.7	24	254	9.5	31	255	3.1	19	260	5.4	24	343	2.4	24	336	2.1	18	256	2.8	23	261	5.8
3,000	29	289	3.0	29	255	4.4	25	299	9.1	24	276	7.2	23	256	4.0	22	261	9.6	31	261	4.0	19	261	6.2	22	331	3.9	24	339	2.3	15	280	2.8	22	262	6.1
4,000	25	287	3.8	26	277	4.6	18	302	9.7	14	288	7.7	18	306	4.3	20	262	13.1	31	280	5.3	14	289	6.8	21	306	6.0	19	326	4.2	12	269	7.7	21	268	6.9
5,000	22	299	5.0	20	285	7.4	14	289	10.5				16	302	5.7	12	275	11.0	27	293	7.1	13	301	9.1	21	307	8.8	16	310	5.3				15	288	9.4
6,000	19	314	6.2	17	299	7.6							16	299	8.1				26	303	9.4				21	307	11.1	12	308	6.7				10	293	10.2
8,000	12	326	10.0	13	307	8.5							14	299	9.2				21	286	9.8				14	295	11.7									
10,000													12	296	10.4				12	291	11.2															

Altitude (meters) m s l	New York, N. Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (338 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	28	180	1.4	30	275	5.4	30	175	2.4	30	349	0.5	31	261	2.4	30	354	3.7	26	232	1.1	30	186	1.3	30	124	4.6	30	276	4.5	29	276	1.3	31	245	3.4
500	28	232	3.0	30	287	4.1	30	183	2.6	30	337	.9	31	255	2.8	--	---	---	26	273	.8	30	199	1.8	30	133	5.0	30	282	3.1	29	258	1.5	31	238	3.0
1,000	24	265	4.3	28	308	5.1	28	190	4.0	27	234	1.0	31	242	3.1	30	359	3.7	26	234	2.0	29	194	3.2	30	144	4.9	21	297	1.9	26	219	2.0	31	224	3.7
1,500	24	278	5.1	26	324	3.9	24	215	5.6	25	228	2.8	31	224	3.1	30	325	3.2	23	248	3.1	28	220	3.8	26	168	4.3	20	270	1.5	23	233	2.0	28	234	3.6
2,000	22	286	3.9	26	333	3.4	21	232	6.1	25	246	4.5	31	231	2.8	27	293	3.2	19	266	3.6	25	241	5.1	24	199	4.6	19	304	.9	23	270	2.2	21	267	3.2
2,500	20	305	5.1	26	328	3.4	21	258	7.2	23	248	6.6	31	234	3.3	27	282	5.3	19	263	5.1	22	253	7.4	18	232	4.3	19	315	1.7	20	301	3.1	15	284	3.8
3,000	15	281	7.1	26	326	3.6	20	253	9.1	21	261	8.5	30	228	4.7	22	266	6.8	18	267	6.3	21	263	8.4	16	243	5.6	17	323	2.2	18	286	3.5	15	293	5.5
4,000				25	329	6.2	18	260	12.5	15	265	13.1	30	243	5.6	16	274	8.3	15	258	9.3	20	277	8.9	15	264	8.4	16	298	5.4	16	292	5.7	14	296	10.3
5,000				25	327	8.0	17	271	15.0	14	268	17.9	26	13	8.0	13	275	10.0	11	258	6.9	18	275	10.5	10	273	10.1	14	295	7.3	15	289	7.7	14	295	12.4
6,000				23	325	10.4	15	275	15.3	14	261	19.8	22	256	10.4	13	276	10.4	11	263	7.6	16	276	11.6				13	285	9.0	13	279	10.4	13	297	13.9
8,000				16	314	9.4	11	281	15.0				17	246	16.3							10	291	11.1				10	288	8.7				11	298	16.5
10,000				12	343	9.7																														

Altitude (meters) m s l	Spokane, Wash. (725 m.)			Washington, D. C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	29	225	1.6	27	151	1.6
500	--	---	---	27	187	1.0
1,000	29	236	6.8	23	240	3.0
1,500	29	239	6.6	22	260	4.1
2,000	28	248	5.6	19	275	6.1
2,500	29	252	5.3	17	281	7.2
3,000	25	262	5.0	15	293	7.3
4,000	21	280	7.9	12	285	11.1
5,000	12	281	10.8			

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

Table 22 — MAY 1950

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Caribou, Me. (191 m.)			Charleston, S. C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N. C. (275 m.)			Hatteras, N. C. (3 m.)			International Falls, Minn. (358 m.)			Little Rock, Ark. (80 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	222	0.4	31	130	3.6	30	353	0.8	31	131	5.6	31	264	1.3	31	177	1.3	31	156	1.8	31	293	2.0	31	103	0.9	31	201	0.9	31	93	0.5	31	128	0.5
500	--	---	----	--	---	----	--	---	----	31	146	9.6	31	255	3.3	30	208	4.2	31	177	3.8	--	---	----	31	180	1.6	31	233	4.0	30	136	1.0	31	173	4.2
1,000	--	---	----	31	151	6.4	30	343	2.2	31	153	8.6	31	273	3.6	29	247	2.9	31	194	4.1	--	---	----	31	222	2.4	31	250	3.8	30	184	3.5	31	201	6.0
1,500	--	---	----	31	179	6.3	30	311	3.6	31	158	7.2	31	287	3.6	29	280	3.4	31	223	3.7	30	311	2.1	31	258	4.2	31	271	3.9	30	201	4.2	31	209	5.9
2,000	31	262	5.0	31	209	6.7	30	294	4.9	31	166	5.9	31	293	4.7	29	304	3.3	31	240	4.2	30	289	3.2	31	275	5.2	31	282	4.6	29	226	3.7	30	224	4.6
2,500	31	259	6.5	31	235	7.7	30	285	6.6	31	179	4.3	30	304	5.7	30	304	4.2	31	248	5.8	30	284	4.4	31	279	6.5	31	287	5.4	29	246	4.7	30	242	4.5
3,000	31	258	7.2	30	244	8.8	30	280	7.7	31	204	3.1	30	299	6.3	30	300	4.3	31	253	7.0	30	286	5.6	29	283	7.1	31	289	6.7	29	252	5.3	30	242	4.6
4,000	31	254	8.5	30	260	11.5	29	276	9.1	30	253	3.6	30	287	8.5	29	288	5.7	29	267	9.0	31	270	6.8	29	285	8.1	31	284	6.8	29	264	6.2	30	270	7.1
5,000	31	252	10.5	26	269	12.7	29	272	9.7	31	274	5.2	30	276	11.0	30	283	6.4	29	271	11.0	30	259	7.3	29	283	9.6	29	283	8.1	29	262	8.8	29	270	9.7
6,000	30	254	11.8	26	279	13.3	29	269	10.4	31	276	8.0	29	268	11.9	30	281	8.0	29	267	12.9	29	266	9.0	28	280	9.4	29	284	10.2	28	261	9.9	28	266	11.4
8,000	23	259	16.0	26	270	20.2	27	270	12.1	31	273	14.3	26	261	12.0	29	278	11.9	29	265	15.7	24	278	12.6	27	276	11.4	28	278	11.0	29	264	11.4	23	259	15.6
10,000	16	264	15.9	16	263	21.1	22	259	10.4	23	270	19.0	25	262	16.6	26	279	12.4	25	260	16.4	18	308	13.5	26	265	14.0	27	284	14.1	26	262	16.5	23	255	21.3
12,000	13	269	19.6	15	237	32.3	13	265	14.4	18	277	21.8	20	272	13.2	24	281	20.0	24	268	19.6	11	270	8.3	23	281	18.5	24	287	16.2	19	274	16.6	17	258	27.5
14,000							10	254	13.5				11	309	7.1	17	291	17.2	18	257	16.1				15	290	15.6	21	284	14.3	13	275	14.9			
16,000																			14	273	11.9				12	309	8.6	19	291	7.5						

Altitude (meters) m.s.l.	Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			New Orleans, La. (6 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	334	5.0	31	88	1.9	30	93	0.6	31	160	1.0	31	168	2.3	31	277	4.5	30	139	3.4	31	345	2.2	31	107	3.6	31	91	2.7	31	177	0.5	31	277	3.8
500	31	330	5.4	31	108	3.7	30	229	1.4	31	190	2.3	30	194	4.4	31	290	5.1	26	128	3.3	--	---	----	31	124	6.8	31	100	5.9	28	171	.7	31	313	3.7
1,000	31	325	5.4	31	100	2.9	30	301	1.4	31	221	3.8	30	187	3.2	31	298	4.5	24	163	3.3	31	344	2.1	31	148	9.0	31	101	6.4	26	216	3.2	31	331	4.7
1,500	31	310	4.2	31	86	1.8	30	292	3.3	31	235	5.2	30	173	2.6	31	327	4.1	25	209	3.6	31	336	3.1	31	168	7.9	31	95	5.8	26	237	4.3	31	355	4.1
2,000	31	291	3.2	31	42	1.5	29	290	4.1	31	246	5.3	30	186	1.9	31	328	4.2	27	244	4.5	31	308	3.3	31	192	6.4	31	92	5.2	25	252	3.7	31	2	4.1
2,500	31	302	3.6	31	31	2.2	29	279	5.7	31	251	6.0	31	231	2.7	31	318	3.8	28	264	6.4	31	282	4.8	31	217	5.8	31	82	3.7	27	269	5.4	31	351	3.6
3,000	31	298	4.5	31	12	1.9	29	267	7.0	31	258	6.6	31	254	3.4	31	322	4.3	29	270	8.6	31	280	7.2	31	235	6.2	31	100	1.9	27	271	6.6	31	337	4.6
4,000	31	293	7.3	31	330	2.5	29	264	8.7	31	273	7.2	31	262	5.2	31	323	6.1	28	275	11.2	29	271	9.1	30	257	8.3	31	14	.1	29	261	8.4	30	317	5.6
5,000	31	293	9.1	31	311	4.2	28	261	9.9	31	271	8.0	28	267	7.8	31	317	9.8	28	261	12.5	29	270	11.5	30	272	10.9	29	283	2.0	29	257	9.9	28	322	6.3
6,000	30	295	10.1	31	301	6.5	27	262	11.1	30	273	9.7	24	278	10.5	29	328	9.7	28	260	12.4	29	260	13.1	30	274	14.7	29	267	4.7	30	256	11.4	27	329	6.9
8,000	28	301	12.8	31	298	10.3	22	266	10.0	30	268	13.7	22	278	16.0	26	340	10.4	27	259	15.7	27	255	14.9	27	263	20.5	28	260	10.4	28	257	14.0	25	322	8.0
10,000	21	312	14.6	31	291	15.7	16	268	14.8	28	265	16.1	18	283	19.0	25	342	13.7	25	254	20.6	25	246	14.4	25	264	29.0	28	256	17.7	21	258	16.8	24	329	9.5
12,000	15	304	13.9	30	289	19.7	10	270	19.5	23	269	21.0	14	285	27.7	22	341	13.1	24	256	22.6	20	264	12.2	16	269	32.5	28	255	25.1	14	240	15.3	20	323	11.3
14,000				20	289	22.1				10	271	25.0				11	295	11.0	11	262	18.8	13	260	12.4				24	262	26.0	11	258	13.1	10	282	13.0
16,000																												16	270	16.4						

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	293	0.4	31	216	2.9	31	231	3.3
500	31	192	.8	--	---	----	31	258	4.3
1,000	30	192	1.3	31	238	5.3	31	259	4.6
1,500	30	231	2.4	31	255	5.9	31	263	4.2
2,000	29	273	3.7	31	263	5.7	31	271	4.6
2,500	29	284	5.3	31	266	6.0	31	282	5.7
3,000	29	277	6.7	31	268	6.1	31	280	6.9
4,000	29	274	8.5	30	286	7.6	30	282	8.7
5,000	26	280	9.7	28	288	9.6	29	284	10.0
6,000	24	285	10.9	26	300	9.3	24	287	7.3
8,000	17	287	9.5	24	306	13.8	20	304	8.7
10,000	11	291	9.6	18	309	17.4	10	269	12.2

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.

SOLAR RADIATION DATA

Table 30.--Solar radiation intensities, tabulated in langleys. MAY 1950

TABLE MOUNTAIN, CALIF.

Date	Sun's zenith distance: A M 78.7°	75.7°	70.7°	60.0°	0.0°	P M 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a m	1:30 p m
	Air mass: 3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
										Mb.	*Mb.*
May											
9....	0.99	1.10	1.23	1.37	----	----	----	----	----		
10...	1.07	1.16	1.26	1.40	----	----	----	----	----		
20...	.91	1.01	1.13	1.27	----	----	----	----	----		
31...	----	----	----	1.31	----	----	----	----	----		
Averages	0.99	1.09	1.21	1.34	----	----	----	----	----		
Departures	-.04	-.04	-.04	-.03	----	----	----	----	----		

LINCOLN, NEBR.

	Air mass: 4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
May											
6....	----	----	----	----	1.23	1.03	0.79	----	----	6.6	7.8
16...	----	----	----	----	1.30	.97	.77	0.62	0.54	10.2	13.7
22...	----	----	----	----	1.25	1.06	.88	.75	.62	12.3	15.9
23...	----	----	----	----	1.24	.99	.77	.62	.50	16.5	17.7
31...	----	----	----	----	1.31	1.03	----	----	----	14.2	7.2
Averages	----	----	----	----	1.27	1.02	.80	.66	.55	----	----
Departures	----	----	----	----	-.10	-.10	-.10	-.13	-.12	----	----

MADISON, WIS.

	Air mass: 4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
May											
2....	0.66	----	----	0.90	----	----	----	----	----	5.6	6.9
6....	.80	0.87	0.98	1.15	1.36	----	----	----	----	6.1	6.6
10...	----	.91	1.03	1.16	1.35	----	----	----	----	6.9	8.4
12...	----	.61	.77	1.04	1.29	----	----	----	----	9.8	11.3
13...	----	----	----	1.07	1.34	----	----	----	----	12.7	12.3
15...	.75	.84	.98	1.14	1.35	----	----	----	----	9.4	8.4
17...	.59	.69	.75	.94	1.33	----	----	----	----	8.7	9.1
18...	.50	.63	.76	.99	1.37	----	----	----	----	6.9	8.7
23...	.65	.74	.87	1.04	----	----	----	----	----	13.7	17.0
27...	----	.68	.95	1.13	----	----	----	----	----	9.1	11.0
29...	.40	.54	.63	.88	1.30	----	----	----	----	9.4	13.2
31...	.77	.90	1.03	1.16	1.34	0.95	0.66	0.48	----	13.4	8.7
Averages	.64	.74	.88	1.05	1.34	.95	.66	.48	----	----	----
Departures	+.02	-.02	-.06	-.04	-.02	-.09	-.19	----	----	----	----

BOSTON, MASS.

	Air mass: 4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96
May	(No observations taken - instrument removed temporarily)								

BLUE HILL, MASS.

Date	Sun's zenith distance: A M. 78.7°	75.7°	70.7°	60.0°	0.0°	P M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a m	1:30 p m.
	Air mass: 4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
										Mb.	*Mb.*
May											
3.....	----	----	----	----	----	0.95	0.76	0.62	0.48	5.9	5.2
7.....	0.48	0.60	0.78	1.09	----	----	----	.88	.77	6.3	5.5
8.....	.96	1.05	1.15	1.29	1.52	1.22	1.06	.89	.80	1.5	1.7
9.....	----	----	1.09	1.26	1.49	----	----	----	----	3.9	2.6
13....	.72	.81	.93	1.11	----	----	----	----	----	9.2	7.6
14....	----	----	----	1.29	1.41	1.20	----	----	----	4.5	4.2
17....	----	----	----	----	1.40	----	----	----	----	10.2	8.9
21....	----	----	----	----	----	1.08	.96	.83	.74	8.3	5.8
22....	.86	.97	1.09	1.24	1.49	1.27	1.11	.98	.88	6.7	5.4
23....	----	----	----	1.15	----	----	----	----	----	9.3	11.1
27....	.73	.84	.98	1.16	1.48	1.26	1.13	1.03	.91	11.2	9.7
Averages	.75	.85	1.00	1.20	1.47	1.16	1.00	.87	.76	----	----
Departures	+.07	+.05	+.05	+.11	+.10	+.09	+.11	+.13	+.12	----	----

TACUBAYA, D. F., MEXICO

	Air mass: 3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83		
May											
1.....	0.37	0.46	0.50	0.74	----	0.64	----	----	----	8.4	7.7
2.....	.24	.41	.61	.83	----	----	----	----	----	9.2	7.2
3.....	----	----	----	.72	----	----	----	----	----	8.9	6.9
4.....	----	----	----	1.10	----	1.14	0.62	0.52	----	7.7	6.5
19....	----	----	----	.77	----	----	----	----	----	11.6	11.4
25....	----	----	----	----	----	1.31	1.11	----	0.89	7.7	6.7
26....	.46	.61	.71	----	----	----	----	----	----	8.8	7.1
Averages	.36	.49	.61	.83	----	1.03	.87	.52	.89	----	----
Departures	----	----	----	----	----	----	----	----	----	----	----

*Extrapolated

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface (langleys).

An explanation of Tables 30 and 33 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

Table 31-- Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during May, 1950

Date----------	30	1	2	3	4	5	6	Averages	7	8	9	10	11	12	13	Averages	14	15	16	17	18	19	20	Averages
Langleys-------	298	28	281	305	287	61	142	200	279	321	310	67	263	276	286	257	290	166	80	278	107	32	248	172
Date----------	21	22	23	24	25	26	27	Averages	28	29	30	31	1	2	3	Averages								
Langleys-------	272	275	241	190	168	265	264	239	252	114	80	239	63	257	221	175								

Table 32-- Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during May, 1950

Date----------	30	1	2	3	4	5	6	Averages	7	8	9	10	11	12	13	Averages	14	15	16	17	18	19	20	Averages
Langleys-------	119	24	107	89	116	51	94	86	116	116	104	54	137	133	113	110	119	110	85	114	82	25	125	94
Date----------	21	22	23	24	25	26	27	Averages	28	29	30	31	1	2	3	Averages								
Langleys-------	144	145	177	150	130	157	157	151	184	113	87	142	64	171	148	130								

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

Table 33. MAY 1950

	Honolulu, T.H.	Pearl Harbor, T.H.	Brownsville, Tex.	Gainesville, Fla.	Apalachicola, Fla.	Lake Charles, La.	El Paso, Tex.	Ft. Worth, Tex.	La Jolla, Calif.	Charleston, S.C.	Griffin, Ga.	Phoenix, Ariz.	Riverside, Calif.	Albuquerque, N.Mex.	Hatteras, N.C.	Oklahoma City, Okla.	Raleigh, N.C.	Oak Ridge, Tenn.	Las Vegas, Nev.	Nashville, Tenn.	Stillwater, Okla.	Fresno, Calif.	Davis, Calif.	Washington, D.C.	Columbia, Mo.	Soda Springs, Calif	Seabrook, N.J.
1950																											
April 30-----	523	473	373	317	619	(509)	717	389		615	500	724	217	734	705	402	337	341	749	121	434	729	649	63	217	749	116
May 1-----	592	559	527	653	589	(425)	697	126		537	430	725	422	708	(310)	359	309	425	620	201	161	301	293	486	344	149	383
May 2-----	393	443	484	599	604	269	732	614		513	449	732	480	763	588	544	336	223	709	141	400	468	284	116	610	205	160
May 3-----	428	454	657	628	555	642	733	579		277	576	584	388	706	183	638	382	435	713	456	550	610		127	575	594	191
May 4-----	671	676	682	707	604	533	(716)	477		560	579	703	660	623	341	245	544	475	756	394	328	712	623	407	454	770	403
May 5-----	692	685	619	592	672	524	798	538		639	589	761	665	792	(599)	---	633	565	729	514	557	751	657	451	521	603	418
May 6-----	649	544	670	665	713	619	788	146		632	693	768	643	779	694	655	677	464	730	89	575	764	702	386	706	372	428
Averages-----	564	545	573	594	634	503	740	410		539	545	728	497	730	489	474	457	419	715	274	429	619	596	291	489	492	300
Departures---	-11	+6	---	-5	---	+11	---	-25		---	---	---	-55	---	---	---	---	-4	-2	-167	---	-13	-31	-171	+23	-120	---
May 7-----	688	739	709	619	705	674	(773)	423		(463)	630	776	661	787	(384)	181	544	181	727	215	12	784	657	486	522	643	517
May 8-----	687	605	674	436	657	735	703	730		(599)	651	781	679	790	778	305	772	659	708	565	219	771	602	739	352	592	752
May 9-----	718	640	685	507	659	658	587	396		688	344	752	670	770	752	197	723	280	778	331	189	751	645	565	396	812	659
May 10-----	686	680	454	615	734	654	535	461		717	589	775	663	696	692	---	516	363	782	467	49	754	584	371	273	810	503
May 11-----	742	624	515	759	644	522	742	178		702	672	760	630	646	643	218	538	430	637	302	299	589	606	365	306	656	538
May 12-----	693	736	527	705	703	400	579	467		687	480	732	577	723	622	672	494	107	729	187	644	765	635	90	723	678	143
May 13-----	697	521	687	657	654	191	797	649		405	586	765	411	691	247	616	264	---	742	337	539	757	569	583	583	683	669
Averages-----	699	649	607	614	680	548	673	429		609	565	763	613	729	588	365	550	336	729	343	279	739	614	457	451	696	540
Departures---	+58	+41	---	+15	+47	+9	---	-42		---	---	---	+62	---	---	-101	---	-83	0	-130	---	+85	-41	-20	-19	+27	---
May 14-----	591	594	599	492	589	478	801	739		321	564	751	272	712	177	---	82	---	723	271	512	760	582	427	420	(718)	565
May 15-----	579	543	597	322	234	(650)	797	732		404	643	745	442	645	615	750	391	426	743	415	708	756	574	192	710	814	85
May 16-----	342	382	645	594	668	678	801	383		695	727	760	136	767	117	890	392	603	689	520	688	748	640	421	626	813	328
May 17-----	727	713	438	543	548	692	584	709		674	518	781	105	606	681	699	665	615	740	602	608	763	576	591	730	812	658
May 18-----	702	476	578	655	731	577	806	639		576	663	770	516	785	692	806	474	554	758	605	517	756	658	188	530	795	189
May 19-----	610	680	596	584	737	653	741	692		645	441	763	540	752	606	593	694	610	765	271	504	765	654	201	355	822	164
May 20-----	669	721	386	717	735	158	695	417		176	649	760	516	779	(345)	624	266	702	773	392	433	752	643	299	640	771	249
Averages-----	603	587	563	572	536	555	746	616		499	687	762	361	721	462	660	423	585	742	439	567	757	618	331	573	792	320
Departures---	-26	-21	---	-12	-72	-11	---	+43		---	---	---	-148	---	---	+91	---	+87	-6	-33	---	+109	+3	-134	+67	+28	---
May 21-----	603	533	682	550	636	697	654	686		681	138	758	559	596	789	775	749	408	785	687	738	754	645	737	560	805	702
May 22-----	601	452	697	461	600	605	769	745		174	250	752	506	722	694	738	467	144	712	662	642	730	626	658	758	804	684
May 23-----	624	660	722	600	621	697	652	746		575	604	764	159	664	350	739	626	604	787	706	692	662	638	505	744	770	318
May 24-----	588	722	703	606	736	624	594	732		585	752	773	471	638	740	625	577	627	765	720	579	659	625	503	722	688	476
May 25-----	670	755	738	662	761	655	785	490		704	638	761	625	756	674	411	507	639	783	713	395	726	615	192	463	801	444
May 26-----	557	532	736	651	709	492	740	258		710	671	763	574	759	---	188	441	538	811	387	280	677	639	390	165	818	330
May 27-----	628	613	600	509	703	467	762	765		646	698	784	624	780	---	667	687	442	796	464	368	736	533	598	158	739	647
Averages-----	610	610	697	577	681	605	708	632		582	536	765	503	717	649	592	579	486	777	620	528	706	617	512	510	775	514
Departures---	-2	+10	---	+3	+55	+52	---	+22		---	---	---	-40	---	---	-15	---	-9	+21	+92	---	+38	-24	+14	-31	-8	---
May 28-----	604	712	491	571	736	528	791	587		583	577	773	538	770	---	402	537	490	725	422	525	733	670	167	299	775	308
May 29-----	567	580	686	670	761	672	798	632		386	520	773	578	796	---	613	514	636	770	651	484	766	638	159	293	822	122
May 30-----	695	564	746	533	591	231	719	760		614	504	718	512	796	---	700	644	437	786	243	735	760	649	425	300	770	511
May 31-----	692	605	680	380	610	615	456	656		433	674	(655)	542	754	---	746	364	250	763	439	656	776	617	236	548	685	393
June 1-----	637	694	326	679	699	455	791	303		730	702	688	556	563	701	---	712	677	669	718	473	766	636	466	562	808	268
June 2-----	615	587	147	606	575	222	743	312		634	509	763	497	646	731	329	592	306	751	204	394	766	619	722	391	809	688
June 3-----	565	391	553	544	274	400	670	670		507	397	771	557	482	671	721	362	171	642	136	721	766	707	247	624	856	294
Averages-----	625	591	518	569	607	446	710	560		555	552	735	540	687	---	585	532	424	729	402	570	762	648	346	431	789	369
Departures---	-21	-24	---	+13	-34	-69	-12	-29		---	---	---	+9	---	---	+17	---	-52	0	-99	---	+85	+56	-167	-54	+13	---

Accumulated Departures January 1 to June 3, 1950

	-210	+161	---	---	---	---	---	---		---	---	---	-3227	---	---	---	---	---	---	-798	---	+8057	-266	-4508	-140	-364	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.

Table 33—Continued

MAY 1950

	Grand Lake, Colo.	Salt Lake City, Utah	New York, N.Y.	State College, Pa.	Lincoln, Nebr.	Newport, R.I.	Put-in-Bay, Ohio	E. Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Amherst, Mass.	Lynn, Mass.	Ithaca, N.Y.	Twin Falls, Idaho	Albany, N.Y.	E. Lansing, Mich.	Madison, Wis.	Portland, Me.	Toronto, Ont.	Ottawa, Ont.	Caribou, Me.	Summit, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska	Aklavik, MacKenzie
1950																										
April 30-----	618	---	86	42	532	282	52	399	616	580	---	616	191	684	520	130	98	708	368	652	594	633	354	618	536	600
May 1-----	610	---	90	296	542	68	419	74	72	60	---	84	90	176	230	372	662	90	208	83	525	363	347	629	---	475
May 2-----	622	---	127	529	138	454	610	438	565	475	---	430	591	459	543	606	577	572	601	684	398	366	215	570	221	383
May 3-----	658	---	341	187	154	583	596	541	641	597	---	595	527	496	620	524	446	611	608	441	606	243	382	626	135	(240)
May 4-----	389	---	439	483	454	527	401	534	600	469	---	485	461	571	380	315	428	310	200	110	691	479	96	638	208	378
May 5-----	611	---	72	587	320	161	389	166	138	125	---	135	401	386	106	299	288	583	406	614	741	267	54	250	328	504
May 6-----	740	---	298	294	744	159	706	137	316	348	---	311	230	660	337	525	718	242	582	575	284	412	498	366	453	530
Averages-----	607	---	208	346	412	319	453	327	421	379	---	379	356	490	391	396	460	445	425	451	548	395	278	528	313	444
Departures---	+52	---	-213	-74	-34	-138	+3	-103	-36	-7	---	---	-54	-48	-24	+37	+16	-25	+5	---	---	-55	---	---	-119	---
May 7-----	476	---	531	654	606	572	667	525	666	612	672	---	434	314	676	582	447	629	539	628	475	499	729	397	376	571
May 8-----	655	---	721	763	113	766	712	712	784	721	752	699	724	427	755	570	331	744	660	723	553	497	253	510	516	535
May 9-----	539	---	581	436	740	740	136	673	755	679	703	635	491	690	652	140	383	720	186	528	758	751	93	687	213	565
May 10-----	734	---	182	224	674	90	517	76	143	143	160	172	312	662	189	519	688	139	439	388	267	563	658	(605)	624	625
May 11-----	766	---	657	455	720	695	232	617	603	538	547	552	439	699	460	391	684	582	428	703	610	606	611	(465)	488	409
May 12-----	514	---	442	385	537	562	645	594	637	535	601	756	567	699	579	538	653	608	611	344	487	724	413	581	405	621
May 13-----	658	---	613	544	669	712	465	640	710	652	622	619	251	694	488	497	673	671	323	317	277	634	701	459	419	665
Averages-----	620	---	533	494	580	591	482	548	614	554	579	572	460	598	543	463	551	585	455	519	490	611	494	529	434	570
Departures---	+4	---	+86	+41	+126	+108	+38	+79	+138	+127	---	---	+20	+48	+78	+72	+94	+67	+26	---	---	+103	---	---	-18	---
May 14-----	648	---	677	491	651	788	626	701	776	710	743	690	711	639	752	365	647	759	670	723	813	491	514	399	539	700
May 15-----	419	---	163	165	696	402	---	431	362	349	254	372	156	699	332	577	743	550	326	322	742	513	421	461	677	346
May 16-----	608	---	485	531	677	173	714	114	168	147	401	137	567	710	375	582	283	339	655	270	541	683	298	581	657	465
May 17-----	638	---	540	284	544	668	600	599	728	647	580	672	157	664	256	388	675	682	513	610	705	377	490	328	689	709
May 18-----	359	---	101	154	345	203	696	227	230	175	---	373	90	741	210	487	727	173	234	276	731	334	544	479	515	573
May 19-----	796	---	49	135	686	81	700	69	70	69	73	113	86	673	145	630	574	207	122	283	422	285	170	510	659	376
May 20-----	843	---	315	430	258	449	780	331	569	566	---	605	544	720	615	636	704	478	642	605	767	222	647	615	605	214
Averages-----	616	---	333	313	551	395	686	353	415	381	411	423	330	692	384	524	622	456	452	441	674	415	441	482	620	483
Departures---	+15	---	-111	-88	+44	-80	+240	-74	-57	+7	---	---	-84	+97	-80	+160	+151	-93	+17	---	---	-96	---	---	+147	---
May 21-----	774	---	---	750	760	648	720	575	726	679	---	626	750	704	726	615	446	737	671	736	561	451	638	480	480	340
May 22-----	748	---	728	716	737	794	475	724	806	687	739	692	696	612	779	314	442	759	582	689	787	617	615	434	525	299
May 23-----	709	---	163	375	727	601	647	586	629	561	455	551	423	709	556	517	496	602	341	510	687	507	413	450	535	652
May 24-----	403	---	168	529	501	236	569	310	423	379	113	460	468	741	226	338	563	664	616	595	735	538	540	684	325	575
May 25-----	140	---	279	532	126	263	592	381	383	334	113	435	674	740	254	489	172	726	644	630	700	771	777	501	---	456
May 26-----	618	655	204	542	205	431	638	437	610	632	579	634	674	730	564	129	630	655	537	665	661	679	755	662	---	657
May 27-----	469	696	716	593	88	784	242	721	794	721	722	727	646	648	694	530	715	743	342	590	778	650	704	482	650	600
Averages-----	551	---	376	577	449	537	555	533	624	570	479	589	619	697	543	419	495	698	505	631	701	602	635	528	503	511
Departures---	-34	---	-79	+95	-89	+82	+43	+57	+160	+139	---	---	+140	+92	+90	+29	-2	+142	+68	---	---	+70	---	---	+57	---
May 28-----	315	590	284	284	252	506	660	526	544	454	519	460	146	690	261	657	552	591	241	---	696	555	---	---	600	---
May 29-----	679	627	73	429	411	191	715	352	236	252	151	278	134	687	116	618	698	392	462	---	701	143	---	---	230	---
May 30-----	754	566	522	520	719	272	612	96	162	115	425	127	510	701	502	455	388	191	597	---	496	722	---	---	654	---
May 31-----	790	597	106	131	745	340	209	338	535	458	403	416	256	753	481	389	767	317	228	---	361	734	---	---	223	---
June 1-----	835	541	137	662	612	261	695	278	122	136	87	147	384	717	138	636	771	145	555	---	239	153	---	---	482	---
June 2-----	616	246	646	626	228	727	452	681	757	722	723	634	620	529	748	112	190	644	287	---	440	502	---	---	739	---
June 3-----	349	534	280	179	713	581	139	513	537	520	344	458	127	754	150	389	718	335	194	---	89	759	---	---	601	---
Averages-----	620	529	293	405	526	411	497	398	413	380	397	360	311	690	342	465	583	373	366	---	431	510	---	---	504	---
Departures---	+70	+41	-191	-84	+5	-105	-61	-84	-103	-65	---	---	-180	+118	-130	+31	+82	-142	-115	---	---	-74	---	---	+5	---

Accumulated Departures January 1 to June 3, 1950

	+189	---	-3962	-2660	+637	-4172	+602	-4459	-329	+770	---	---	---	+2534	---	-1113	+637	---	-140	---	---	-581	---	---	+4410	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

Four new stations are being added to Table 33 beginning with this issue and will appear regularly in that table hereafter. A listing of these stations, together with a brief description of each follows:

1. El Paso, Texas: Latitude 31° 48' N.; longitude 106° 24' W.; elevation 1205 meters; Brown strip-chart recorder; good exposure; slight pollution caused by dust storms, occurring mostly in the spring, and by industrial smoke, which rarely reaches the airport area; equipment located at Weather Bureau Airport Station.

2. Phoenix, Arizona: Latitude 33° 26' N.; longitude 112° 02' W.; elevation 345 meters; Brown strip-chart recorder; excellent exposure; year round pollution, due to burning at dumps in valley; seasonal pollution, due to burning straw, etc., off fields; desert dust during periods of strong wind; equipment located at Weather Bureau Airport Station.

3. Las Vegas, Nevada: Latitude 36° 05' N.; longitude 115° 10' W.; elevation 666 meters; Brown integrating potentiometer; good exposure (mounted on post above roof); occasional blowing dust and haze; equipment located at Weather Bureau Office at the airport in Las Vegas.

4. Stillwater, Oklahoma: Latitude 36° 08' N.; longitude 97° 04' W.; elevation 274 meters; Leeds & Northrup Micromax; excellent exposure; some pollution caused by dust; the solar program is sponsored by the Oklahoma Agricultural Experiment Station and is under the supervision of Dr. Ruth Reder of Chemistry Research Division.

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, May 1950

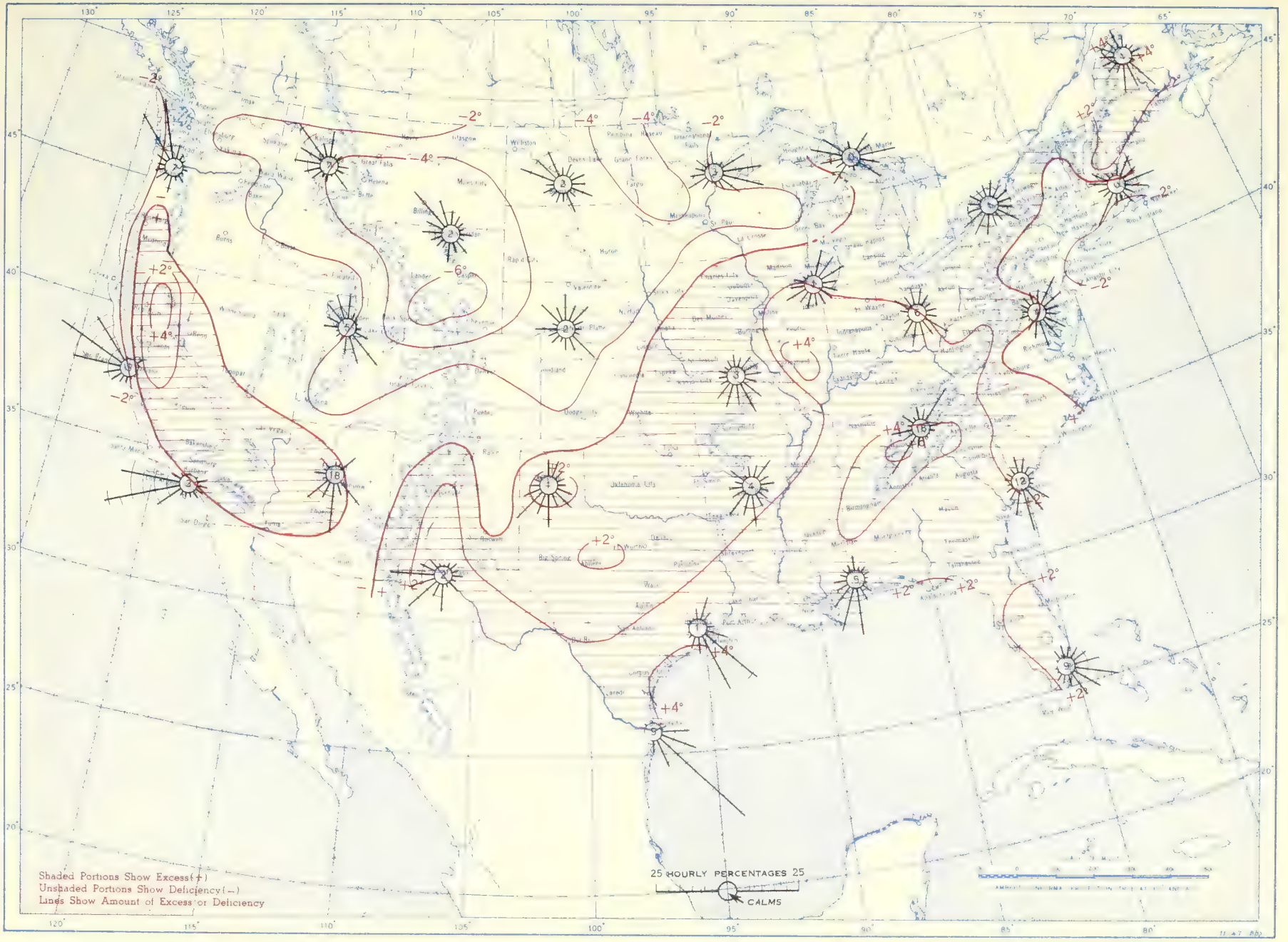
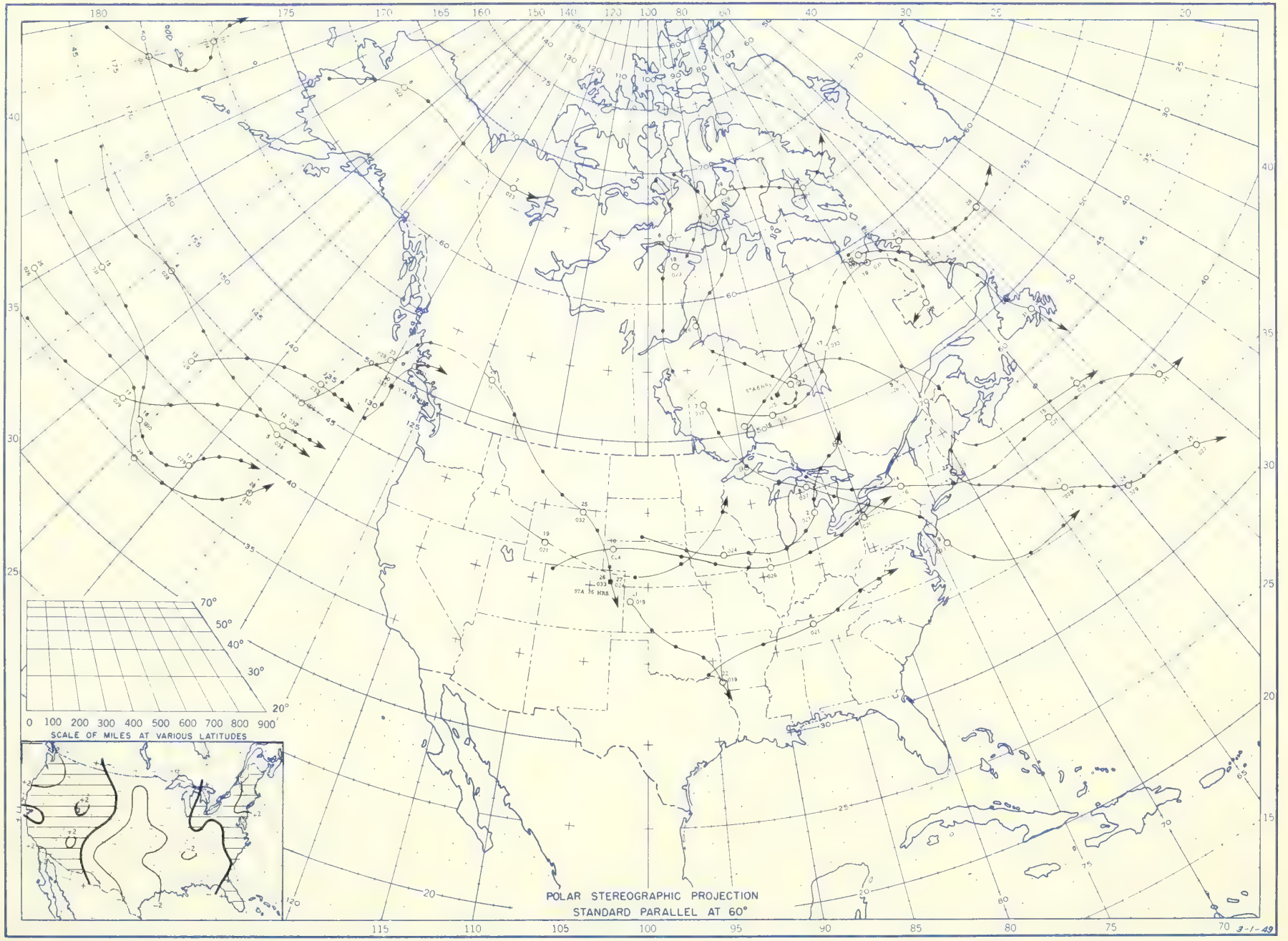
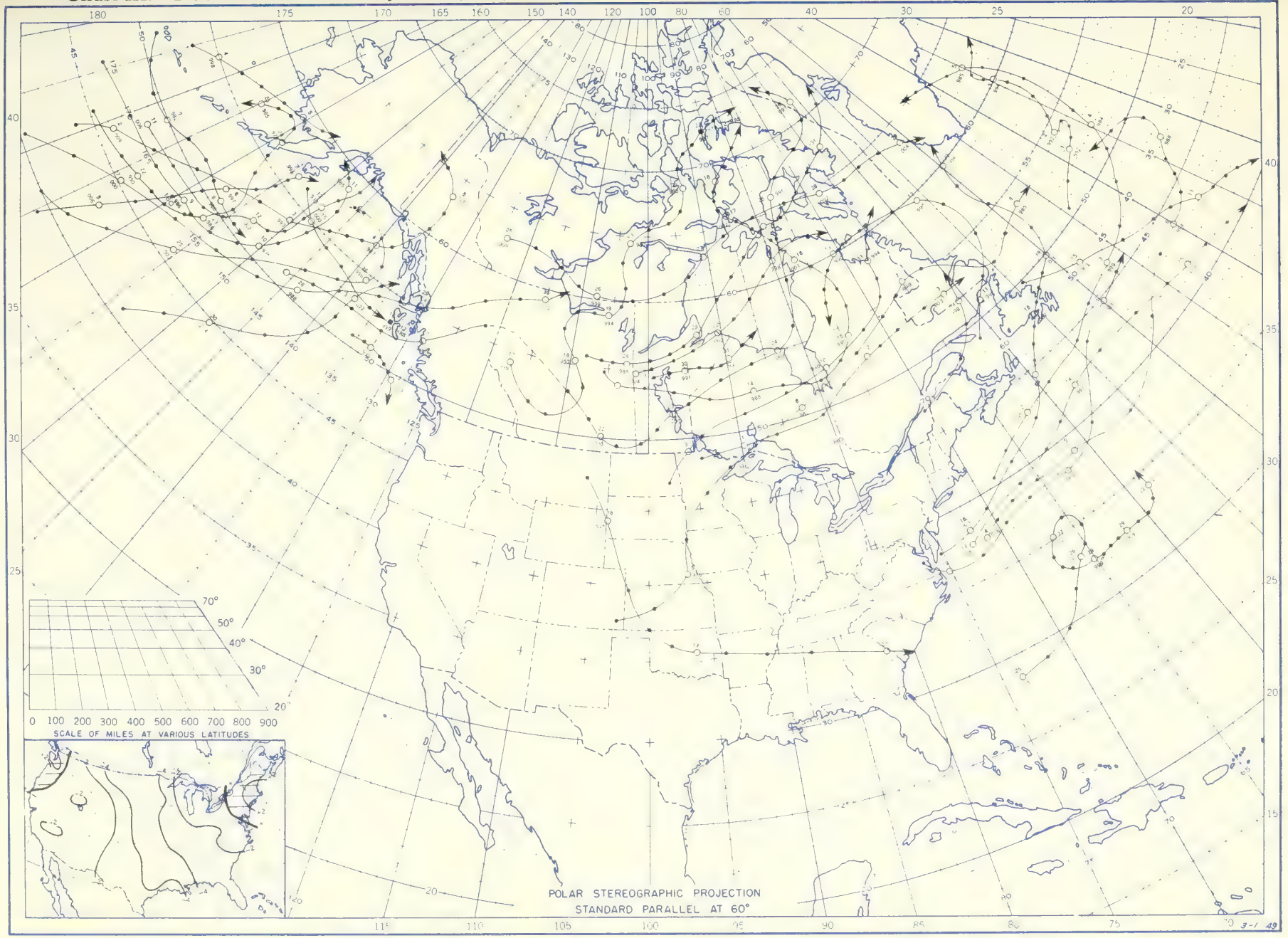


Chart II. Tracks of Centers of Anticyclones, May 1950. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart III. Tracks of Centers of Cyclones, May 1950. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time) Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, May 1950

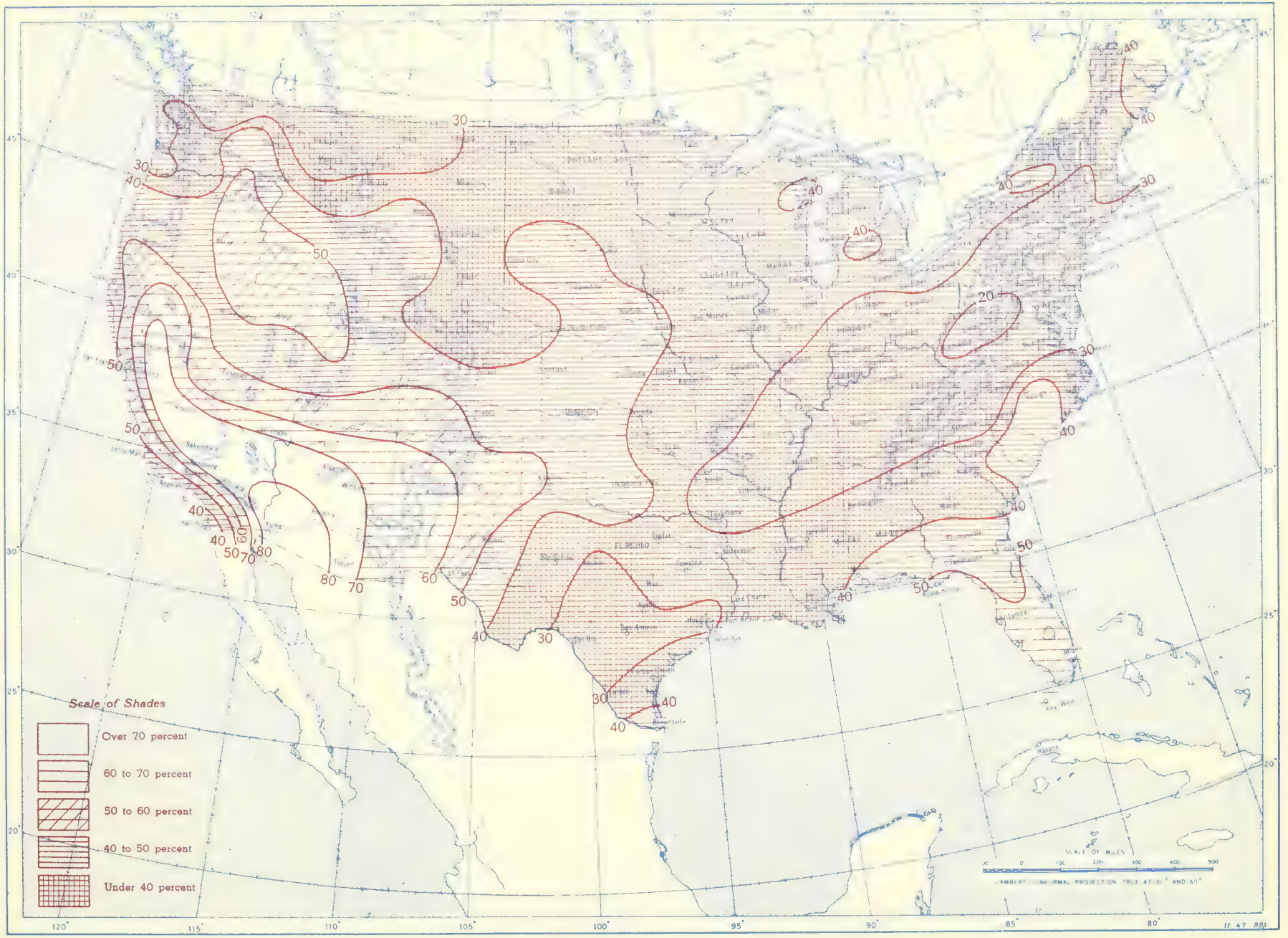


Chart V. Total Precipitation, Inches, May 1950. (Inset) Departure of Precipitation from Normal

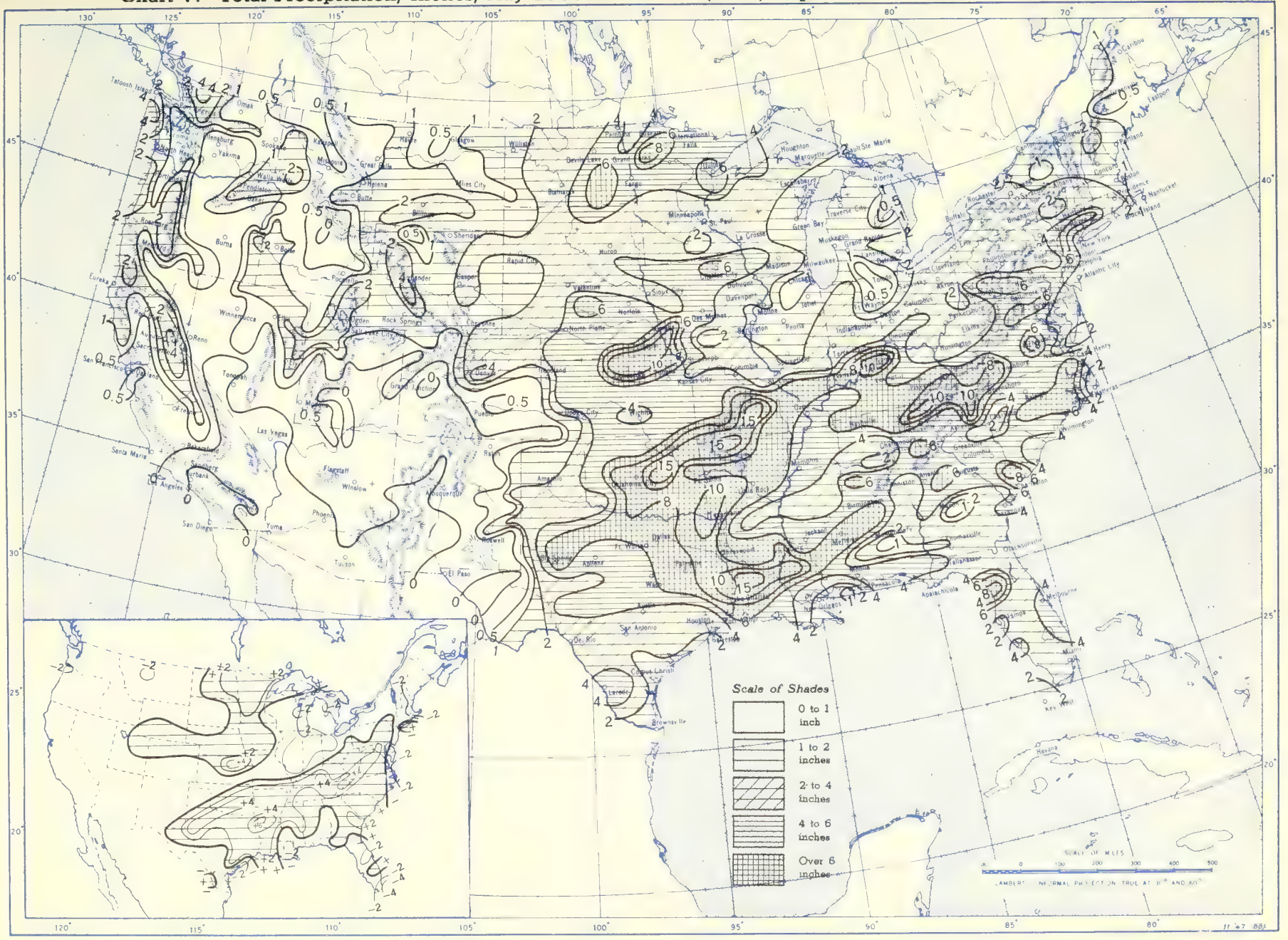
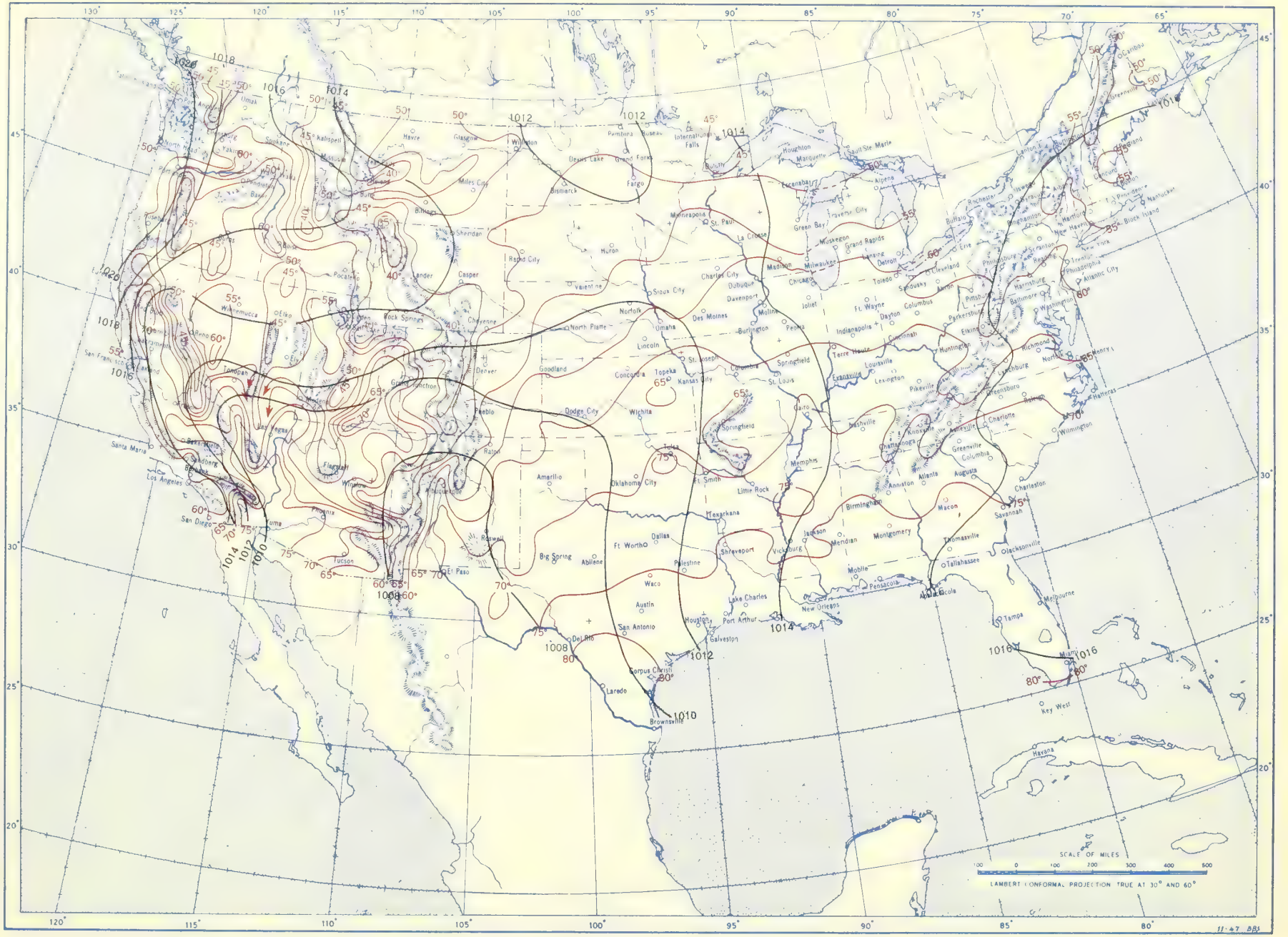
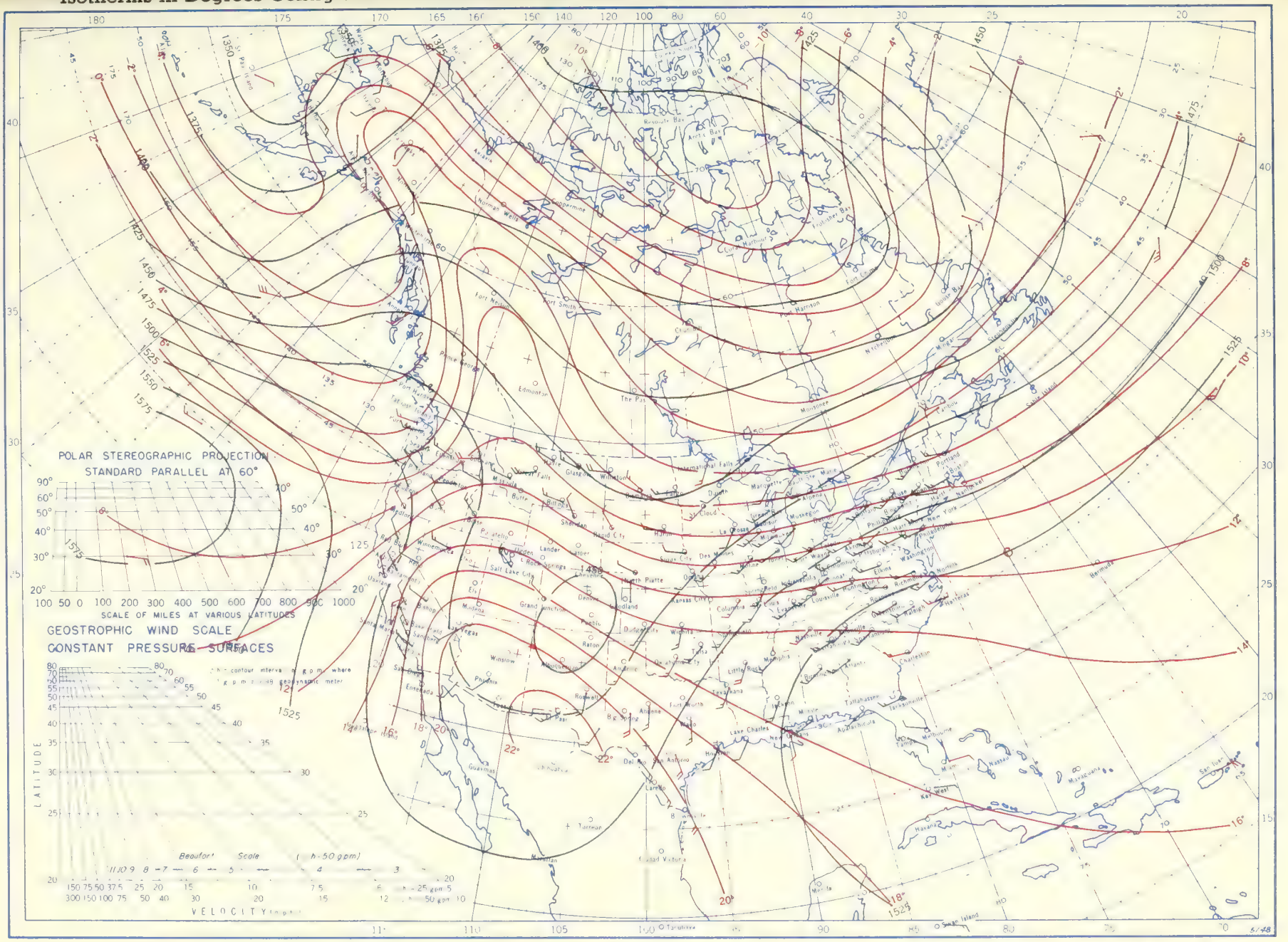


Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., May 1950

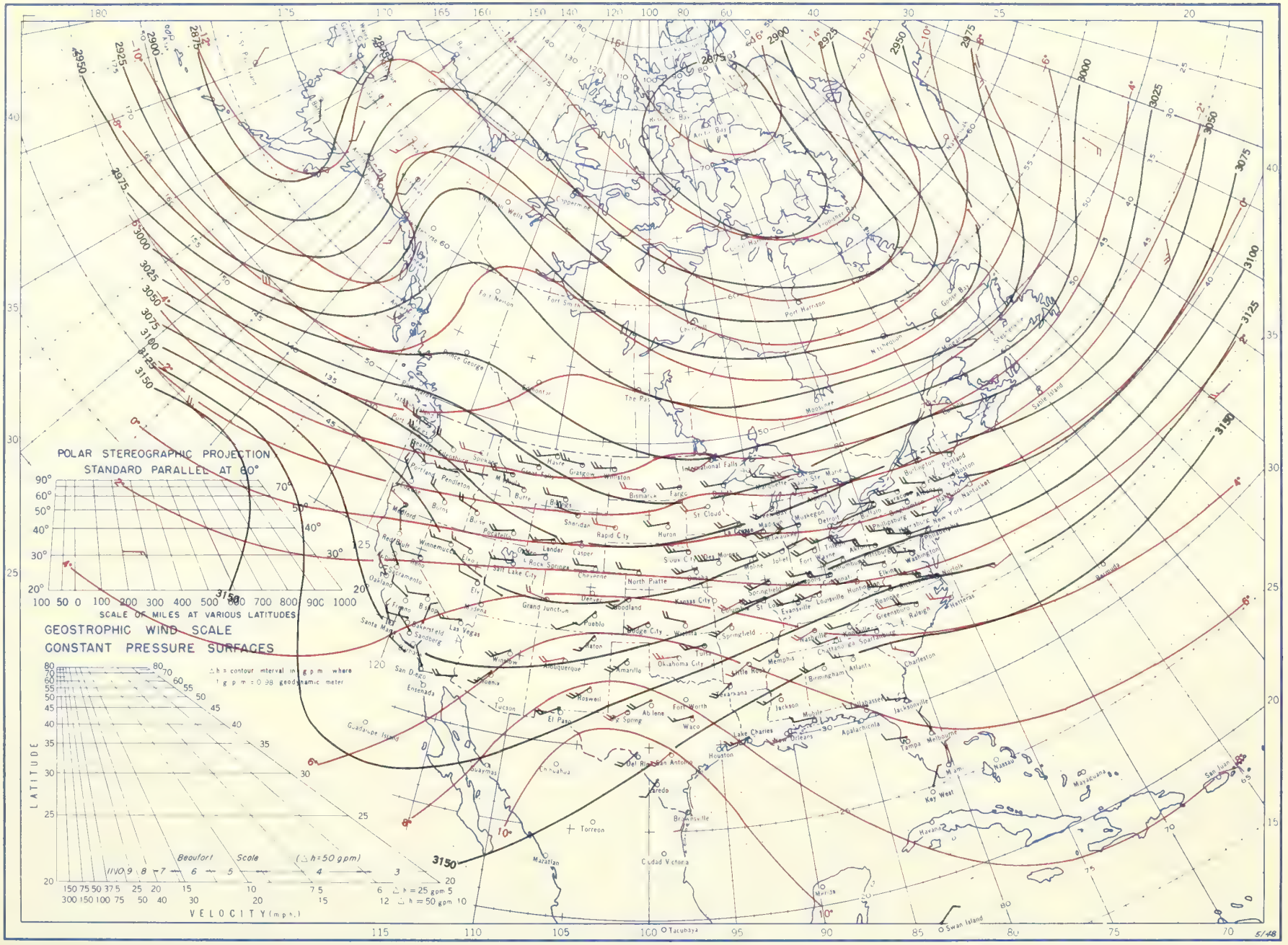


Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m. s. l.)



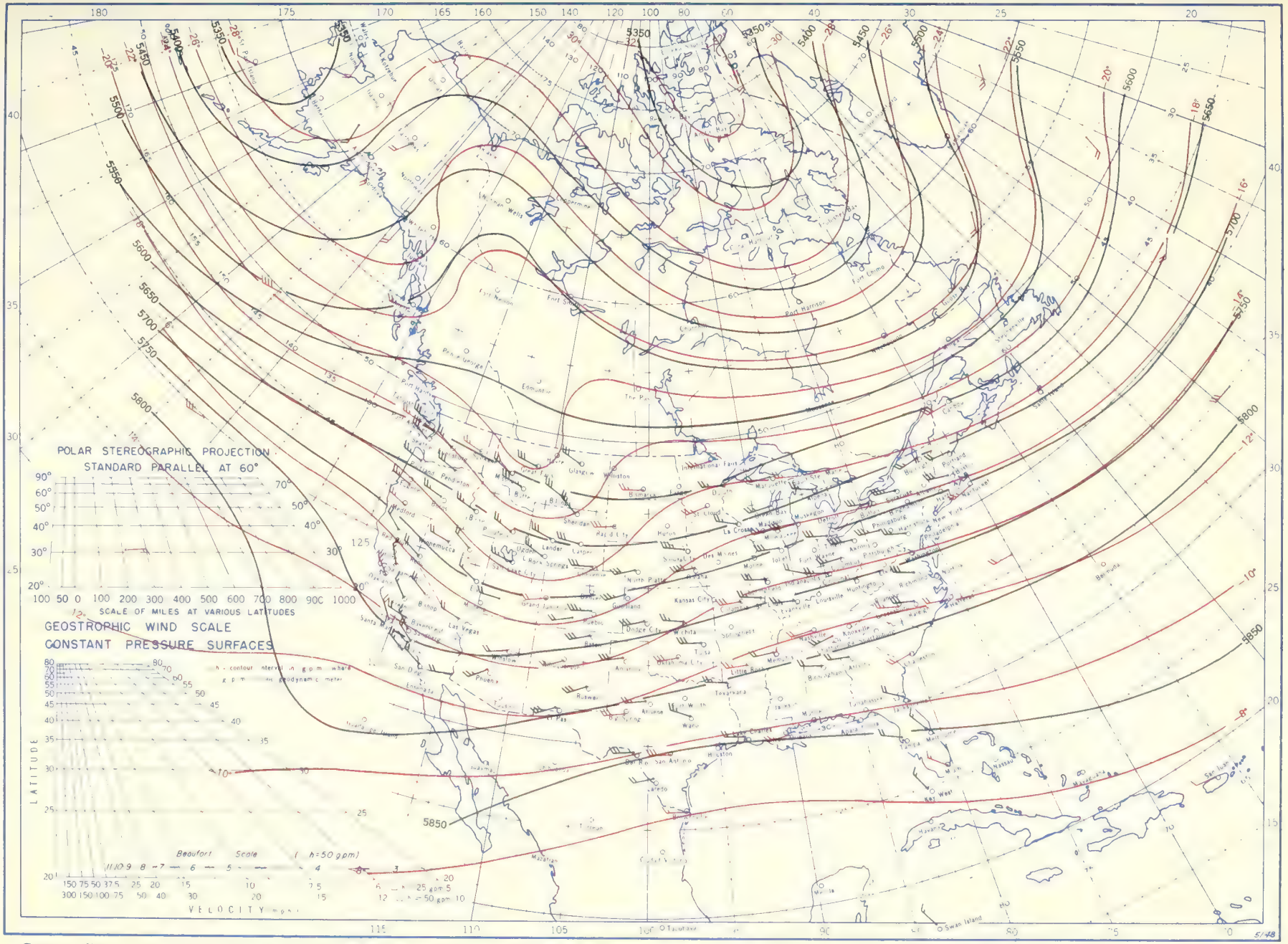
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.: those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart IX, May 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)



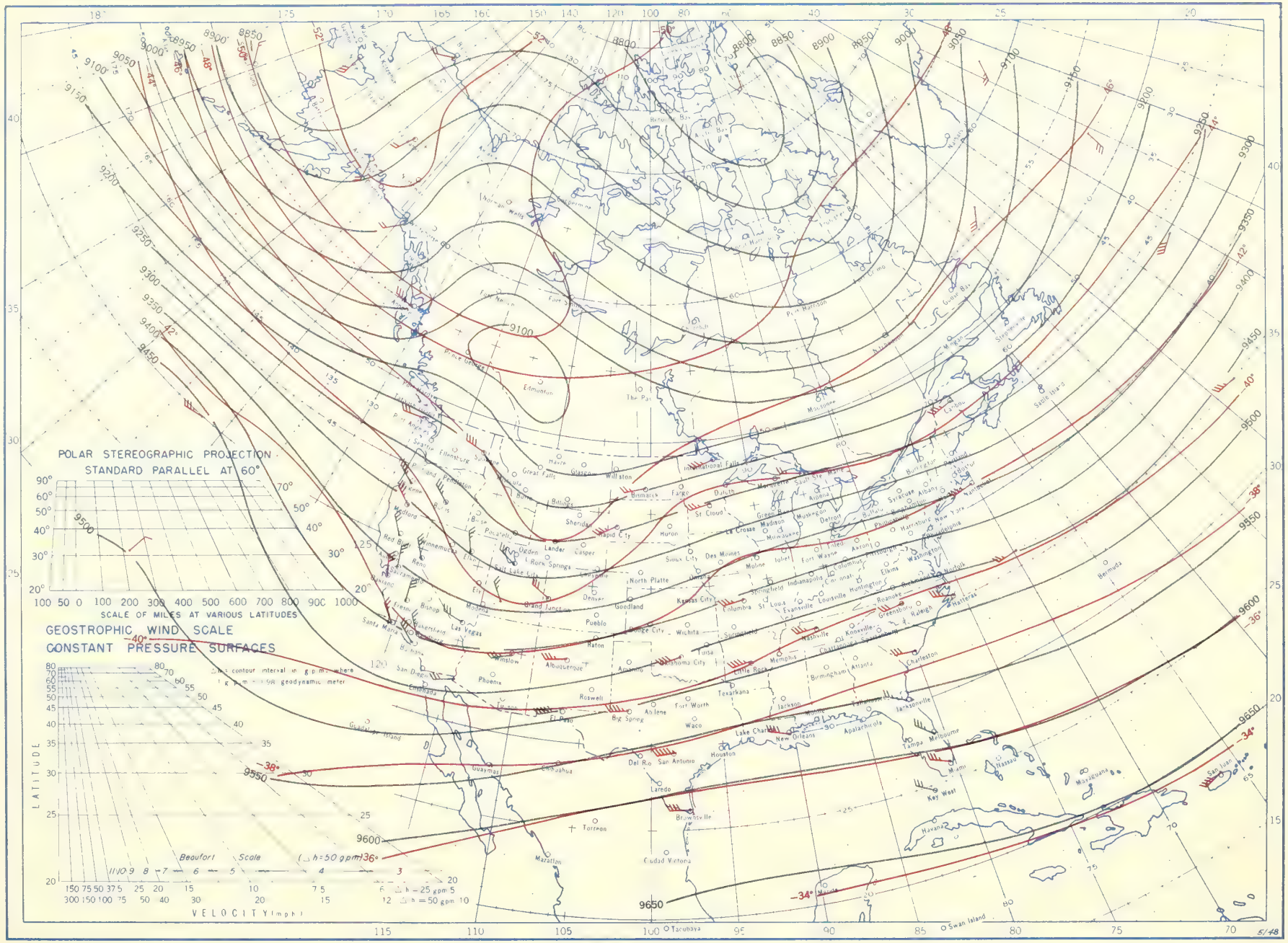
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.;

Chart X, May 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, May 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

JUNE 1950

Volume I No. 6

WASHINGTON: 1950

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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA
NATIONAL SUMMARY

Volume I No. 6

JUNE 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

The June temperature for the United States averaged 8.9°, only 0.4° less than the 58-year mean. Monthly epartures from normal were generally less than 2°; however, the minus anomalies were as much as 4° or more t many stations in the northern Rockies, and at a few tations in western Texas, southern New Mexico, and southrn New England, while several stations in the extreme outheast reported plus anomalies of 3° or more.

The total June precipitation for the United States averaged .74 inches, only 0.16 of an inch less than the 58-year nean. Monthly totals exceeded the normals at most staions in the Northwest and along the west Gulf coast, at nany stations in the Midwest, and at a few other widely cattered stations east of the Rockies. In a large portion f the Midwest monthly rainfall excesses generally ranged rom 2 to over 4 inches. This was Kentucky's 3d and ndiana's 4th wettest June, with monthly totals ranging rom 2.65 to 14.08 inches, and from 1.97 to 11.74 inches espectively. Along the west Gulf coast where excesses vere also large, Galveston, Texas on the 3d and 4th, neasured the country's greatest monthly total of 20.57 nches and the greatest 24-hour amount of 14.17 inches. n Nebraska and South Dakota, however, this was the driest une since 1936, and South Dakota's 3d driest June on record. For the second consecutive month it was very dry in southrn Florida.

The first half of the month was characterized by periods f unseasonably cold weather, especially in the far West nd North. Extreme low temperatures of 14° were recorded n New Mexico on the 5th and in California and Nevada on he 8th. A minimum of 15° at Maverick, Ariz. on the 8th vas a record June low for that State. Frequent frosts which ccasionally extended southward to northern New Mexico nd Arizona during the first decade caused no serious damge due to late crop development.

Snowfall was unusually heavy in the western mountains, nd measurable snow fell at many northern valley stations vhere June snowfall is rare. The most widespread and one f the heaviest snowstorms occurred over Montana and adacent areas on the 7th and 8th. Most stations in Montana ast of the Continental Divide received some snow during his storm, and snow fell in Idaho at elevations as low as ,000 feet. Montana recorded its greatest June snowfall n record, with monthly totals at several stations amounting o 10 inches or more. During a heavy snowstorm over Vyoming on the 2d, Lander received 10.3 inches. Heavy une snowfall in the ranges of the Pacific States accumulated nonthly totals of 22.5 inches at Timberline Lodge, Oreg., inches at Crater Lake, Oreg., and 7 inches at Jess Valley, Calif.

The coldest periods east of the Rockies occurred at the eginning and again about the middle of the month. Belowreezing temperatures were recorded in the Great Plains s far south as Kansas on the 4th, and frost damaged tender egetation in North Dakota on the 3d. Most northeastern tations recorded their lowest temperatures during the period June 11 to 19, when minima fell below freezing on at least one day in the extreme north from Minnesota to New England and in the Appalachians southward to Pennsylvania. Frost occurred in the New Jersey cranberry bogs and other scattered coastal areas, but damage was limited to northern New England. New date-low temperature records were set at scattered stations throughout most of the northeastern quarter of the country.

Rising temperatures during the latter half of the month reached much above-normal levels in the South and far West, especially during the last week. Extreme maxima set new June records at a number of stations, among these being 98.1° at Tampa, Fla. on the 26th, and 114° at Red Bluff, Calif. on the 29th. The month's highest temperature, 125°, was recorded at Cow Creek, Calif. on the 30th.

Associated with the month's frequent and widespread thunderstorm activity were many severe storms. Hail and tornado losses were less than usual, partly due to the fact that losses from individual storms were relatively small. No tornado and only one hailstorm caused damage as much as $1,000,000. Great damage, however, was caused by numerous flash floods, two of which were unusually severe, each causing damage estimated at $10,000,000. During one of these, which occurred in West Virginia on the night of June 24-25 as a result of rainfall estimated at more than 14 inches, 31 people lost their lives and 26 were injured. The greatest loss of life due to a single storm occurred during the night of June 23 when an airliner with 58 people aboard was lost over Lake Michigan; it was believed to have been forced into the Lake by a severe thunderstorm. A hailstone measuring 5 1/2 inches in diameter and weighing 13 ounces was reported from Meadville, Pa. on the afternoon of June 26, an unusually large stone for this section of the country.

On the 10th severe thunderstorm activity in Woodward, Dewey, and Custer Counties of western Oklahoma caused damage estimated at $775,000. A combination of wind and hail that stripped bark from trees in one area was reported to have swept completely clean a 1/2 by 1 mile area near Fay in Custer County, killing cattle, poultry and wildlife. At Mutual 10.23 inches of rain fell in less than 2 1/2 hours. On the 8th a man perished near Fort Peck, Mont. when his car stalled in a heavy snow- and windstorm that was described as a blizzard, although the temperature did not drop below 32°.

Weather conditions were mostly favorable for field work and crop development, although too much rain interfered with corn cultivation in the east North Central States and lack of rain reduced crop prospects in portions of the northern Great Plains. Rains and humid weather during the early part of the month also retarded cultivation and favored weevil development in cotton. It was very dry in the southwest, and by the end of the month pastures were becoming short, and water supplies were short in sections of Arizona and New Mexico. Soil moisture was generally adequate in most other sections of the country.

CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	°F	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	78.2	0.0	2 Stations	103	†25	Valley Head	46	5	3.62	-0.64	Robertsdale	11.06	Troy	0.
Arizona	73.7	-1.0	Parker	121	30	Maverick	15	[illegible]	.34	0.00	Tucson Nursery	3.07	38 Stations	.
Arkansas	76.1	-1.0	Blytheville	102	17	2 Stations	44	5	3.52	-.59	Melbourne	10.26	Magnolia 5N	.
California	68.2	-1.7	Cow Creek	125	30	Twin Lakes	14	8	.27	+.04	Jess Valley	2.73	275 Stations	.
Colorado	61.9	+.3	Eversoll Ranch	105	†13	Pagosa Springs	17	†8	.93	-.51	Stonington 6E	5.47	9 Stations	.
Florida	81.6	+1.7	2 Stations	105	†25	Wauchula	55	†15	3.74	-2.99	Myakka River	10.20	Big Pine Key Inn	.
Georgia	79.1	+.5	Waynesboro	107	28	Blainsville Exp. Sta.	44	5	3.35	-1.11	Flat Top	8.58	Dublin No. 2	.
Idaho	58.8	-1.5	Swan Falls P.H.	108	30	Sun Valley	20	9	1.72	+.39	Burke 2NNE	5.93	Fairfield R.S.	.
Illinois	71.2	-0.9	Mt. Vernon	99	25	3 Stations	40	4	5.63	+1.61	Aurora	10.25	Sparta	1.
Indiana	69.6	-1.6	Johnson Exp. Fm.	99	26	2 Stations	38	4	5.76	+1.80	La Porte	11.74	Rushville P.Plant	1.
Iowa	68.4	-1.1	Shenandoah	100	25	Oakland 2E	34	4	5.70	+1.16	Belleview L & D	9.68	Council Bluffs 5NE	1.
Kansas	74.8	+1.0	2 Stations	110	24	Atwood	31	4	2.86	-1.11	Waverly	8.43	Smith Center	.
Kentucky	72.1	-1.8	3 Stations	96	†24	Mammoth Cave Pk.	32	5	6.60	+2.39	St. Mary	14.08	Owensboro	2.
Louisiana	79.5	-.5	Lake Providence	102	27	Chatham	51	5	7.20	+2.61	Hornbeck	15.08	Farmerville	1.
Maryland-Delaware	70.7	-.2	2 Stations	98	†21	New Germany	32	18	3.20	-.74	Great Falls	6.57	Salisbury	1.
Michigan	63.5	-.4	Alpena Camp	95	[illegible]	Watersmeet	27	17	3.50	+.09	Dowagiac	9.44	Rudyard	.
Minnesota	64.4	-.3	2 Stations	99	†6	Red Lake Indian A.	31	17	2.74	-1.37	Kedwing	9.64	Montevideo	.
Mississippi	78.5	-.4	Biloxi City	102	27	Pontotoc	48	5	3.97	-.22	Holly Bluff	10.80	Waynesboro 2WSW	1.
Missouri	72.9	-.4	Ozark Beach	100	27	2 Stations	39	†4	4.14	-.66	Kahoka	9.61	Saverton L & D	1.
Montana	57.8	-2.3	Wibaux 2E	95	†12	Kings Hill	18	[illegible]	3.21	+.48	Heart Butte	7.70	Ridgway 4S	1.
Nebraska	69.4	+.2	2 Stations	105	†12	Broken Bow #1	30	4	2.07	-1.71	Hartington	6.36	Harlan Co. Dam	.
Nevada	63.9	-1.3	Overton	117	30	Lehman Caves Nat.Mon.	14	[illegible]	.31	-.21	Wilkins	1.55	13 Stations	.
New England	64.4	+.4	Chestnut Hill, Mass.	96	9	Somerset, N.H.	28	12	3.50	-.02	First Conn. Lake, N.H.	8.74	3 Stations	1.
New Jersey	68.5	-.7	Newark WB AP	98	27	Layton 3NW	34	18	2.75	-1.06	Morris Plains	5.16	Clinton	1.
New Mexico	70.9	+1.2	Hagerman	108	26	Eagle Nest	14	5	1.24	+.06	Lulu	7.60	4 Stations	.
New York	64.7	-.4	Shrub Oak	100	27	Allegheny St. Park	29	18	2.93	-.71	Freeville	8.55	Stafford	.
North Carolina	74.5	+.3	Hamlet 4NE	104	27	Mt. Mitchell	35	†4	5.13	+.49	Plymouth	10.53	Patterson	1.
North Dakota	62.2	-.6	Jamestown	101	6	Minot Exp. Farm	25	3	3.14	-.36	Portal	6.64	Oakes	.
Ohio	68.2	-1.5	4 Stations	96	26	Apco Ravenna Arsenal	33	18	4.37	+.40	Thornville	9.82	McArthur Hwy. Dept.	1.
Oklahoma	77.4	.0	Alva	111	25	Ponca City	41	4	3.13	-.89	Ada	7.11	Spencerville	.
Oregon	59.2	-.6	Rome CAA	103	30	Timberline Lodge	20	25	2.13	+.70	Timberline Lodge	6.52	Hood River Exp. Sta.	.
Pennsylvania	66.4	-1.7	Newport	99	27	2 Stations	30	18	3.64	-.49	Clarion 3SW	8.37	Shade Gap	1.
South Carolina	78.5	+.7	Ridgeland 2SE	107	27	Dillon 4SW	48	6	3.45	-1.22	Cleveland 3NE	10.14	Yemassee 4W	.
South Dakota	65.9	-.2	4 Stations	103	†6	Deerfield Dam	19	3	1.46	-2.14	Yankton 3NNW	5.75	Gannvalley	.
Tennessee	74.1	-.7	Samburg	99	27	2 Stations	42	5	4.57	+.31	Monte Leconte	9.53	Monteagle	2.
Texas	79.2	-1.0	Matador	108	25	Miami	42	†1	3.31	+.32	Galveston	20.57	2 Stations	.
Utah	62.8	-1.7	Zion Nat. Park	112	†29	2 Stations	18	8	.24	-.46	Lucin AP	1.35	35 Stations	.
Virginia	71.2	-.7	Walkerton	102	27	Sugar Grove	34	5	3.20	-.94	Damascus	8.58	Bowling Green	.
Washington	60.4	-.4	Richland 2NW	102	30	Bumping Lake	22	2	1.70	+.09	Tekoa	5.02	Dallesport CAA AP	.
West Virginia	68.4	-1.4	6 Stations	94	†9	Pickens No. 1	28	12	6.01	+1.53	Clay No. 1	14.36	Martinsburg	1.
Wisconsin	64.8	.0	Prairie du Chien	98	26	2 Stations	29	17	4.00	-.19	Monroe W. Works	7.76	Wausaukee R.S.	1.
Wyoming	57.7	-.8	Torrington Exp. Farm	97	†6	Tower Falls	18	3	1.27	-.47	Shawnee 14N	4.17	Saratoga 10SW	.
Hawaii (May)	71.5	-.9	Lualualei	92	23	Haleakala R.S.	37	22	6.76	+.96	Kukui	60.00	4 Stations	.
Puerto Rico	77.2	-.3	Ponce	98	†21	San Lorenzo(Espino)	53	12	4.19	-1.77	Humacao	10.91	Cambalache	.

† Other dates also

Note.--Hawaiian data are for May 1950

CLIMATOLOGICAL DATA

able 2

JUNE 1950

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F or above	Temperature: No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In	M p.h		M p.h			0- 3	4- 7	8- 10	0-10	%
ALABAMA																																
Birmingham	610	994.6	1016.7	88	66	76.8	0	96	18	51	5	13	0	66	72	4.97	+.51	2.45	10	4	0.0	0	6.7	SW	35	SW	20	9	9	12	6.2	70
Mobile Co	10	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	----	---	---	37	SE	6	-	--	--	---	59
Mobile	10	1008.5	1016.5	93	71	81.7	-----	99	27	63	5	17	0	71	77	7.78	-----	3.42	10	10	0.0	0	8.5	S	--	---	--	12	10	8	5.8	
Montgomery CO	201	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	----	---	---	21	SW	18	--	--	--	---	71
Montgomery	201	1009.1	1016.2	91	69	79.8	-----	99	27	58	5	19	0	68	71	2.40	-----	.97	10	7	0.0	0	5.7	NW	--	---	--	10	10	10	5.6	--
ARIZONA																																
Flagstaff	6993	788.4	1014.8	78	38	58.0	-----	92	29	24	9	2	9	21	30	.37	-----	.31	3	5	0.0	0	8.9	S	--	---	--	23	7	0	1.5	--
Grayson	4999	847.3	1011.8	89	51	70.1	-----	104	29	35	8	14	0	28	24	.32	-----	.30	2	4	0.0	0	5.2	SW	--	---	--	24	4	2	1.5	--
Phoenix CO	1083	------	------	--	--	85.0	+.5	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	----	---	---	27	SW	21	--	--	--	---	97
Phoenix	1083	969.5	1007.4	104	66	84.9	-----	115	29	52	8	29	0	37	23	.11	+.04	.11	1	1	0.0	0	5.5	E	--	---	--	22	7	1	1.6	--
Prescott	5014	846.6	1010.6	88	52	69.6	-----	102	30	37	8	10	0	23	21	T	-----	T	0	1	0.0	0	11.4	SSW	31	N	1	24	6	0	1.3	9
Tucson	2585	922.5	1008.5	98	65	81.6	-1.0	107	29	53	8	29	0	33	22	1.24	+.97	1.12	2	3	0.0	0	6.6	SSE	42	S	21	22	5	3	2.0	90
Winslow	4880	850.3	1008.5	91	52	71.4	0	100	30	38	8	20	0	17	17	T	-.30	T	0	1	0.0	0	10.9	SW	--	---	--	28	2	0	1.0	
Yuma	203	1002.7	1007.6	102	71	86.6	-----	117	30	60	7	29	0	40	23	0	-----	0	0	0	0.0	0	7.1	SSE	34	W	6	29	1	0	.4	99
ARKANSAS																																
Fort Smith	458	998.3	1014.4	89	67	77.9	+.4	100	26	54	5	16	0	66	71	2.27	-1.45	1.05	7	6	0.0	0	5.8	NE	28	SW	23	11	7	12	5.6	79
Little Rock	257	1002.7	1015.4	87	68	77.8	+.4	97	26	55	5	13	0	67	73	2.07	-1.69	1.01	6	2	0.0	0	7.3	SSW	40	N	10	--	--	-	5.8	68
Texarkana	361	1002.4	1015.2	87	69	78.2	-1.4	95	26	59	5	16	0	68	76	2.25	-1.60	.86	7	3	0.0	0	7.9	S	--	---	--	11	9	10	5.3	--
CALIFORNIA																																
Bakersfield	489	993.9	1012.0	92	61	76.0	-1.7	111	30	47	7	14	0	43	35	0	-.07	0	0	0	0.0	0	7.6	WNW	--	---	--	30	0	0	.1	--
Beaumont CO	2589	923.8	1012.6	86	48	66.7	-----	106	29	39	8	10	0	42	53	T	-----	T	0	0	0.0	0	6.2	W	--	---	-	28	1	1	1.1	--
Bishop	4108	870.6	1008.8	91	49	70.2	-----	105	30	38	7	18	0	--	--	T	-----	T	0	1	0.0	0	---	---	--	---	--	23	7	0	1.8	--
Blue Canyon	5280	839.1	1012.3	69	48	58.4	-----	92	29	28	6	1	3	37	49	.56	-----	.31	3	3	4.3	4	8.1	SSW	--	---	--	18	8	4	3.3	--
Burbank	699	987.1	1013.1	79	55	66.8	-----	98	29	45	7	5	0	49	64	.03	-----	.02	2	0	0.0	0	6.4	S	--	---	--	14	14	2	3.3	--
Eureka CO	43	1015.9	1018.3	58	50	54.3	-----	65	9	45	6	0	0	--	--	1.03	+.31	.36	9	0	0.0	0	7.1	---	26	N	21	3	6	21	8.2	36
Fresno	331	1000.0	1011.7	89	56	72.8	-2.9	109	30	46	7	13	0	48	47	B	-.08	0	0	0	0.0	0	8.3	NW	34	W	6	27	3	0	.9	99
Los Angeles CO	----	------	------	--	--	66.6	+.2	---	--	---	--	--	--	--	--	T	-.08	----	--	--	----	----	---	---	17	W	6	--	--	--	---	71
Los Angeles	312	1010.2	1013.8	70	56	62.8	-----	76	8	48	8	0	0	52	77	.02	-----	.02	1	0	0.0	0	5.6	WSW	--	---	--	12	11	7	4.4	--
Mt. Shasta CO	3543	891.6	1014.5	74	45	59.6	-1.0	91	30	29	8	3	1	42	58	2.20	+1.31	.84	8	8	T	0	8.2	NW	--	---	--	10	10	10	5.4	--
Oakland	3	1014.9	1015.3	68	52	60.1	-.3	91	29	43	7	2	0	48	71	.02	-.18	.02	1	0	0.0	0	9.4	W	--	---	--	12	13	5	4.2	--
Red Bluff	341	999.0	1011.6	90	61	75.6	+.8	114	29	47	7	15	0	41	33	.21	-.26	.14	2	0	0.0	0	8.5	SSE	34	W	23	17	8	5	3.4	86
Sacramento	25	1010.2	1012.3	85	52	68.6	-.8	109	30	41	7	10	0	48	55	.02	-.13	.01	2	1	0.0	0	11.7	SW	47	SW	23	24	4	2	1.8	92
Sandberg CO	4517	862.2	1012.1	76	51	63.7	-----	98	30	31	7	3	1	35	41	T	-----	T	0	0	0.0	0	16.2	NNW	--	---	--	29	0	1	.6	--
San Diego	19	1010.8	1013.9	70	58	64.1	-.9	79	30	52	8	0	0	53	71	T	-.05	T	0	0	0.0	0	7.3	SSW	18	SW	22	13	8	9	5.1	52
San Francisco CO	52	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	----	---	---	---	---	--	--	--	--	---	75
San Francisco	1	1014.6	1015.1	67	51	58.8	+.9	82	29	44	25	0	0	48	74	.07	-.06	.07	2	0	0.0	0	16.8	W	48	W	6	14	12	4	4.0	--
Santa Catalina	1568	957.0	1012.9	69	54	61.1	-----	92	29	46	7	3	0	--	--	.15	-----	.08	3	0	0.0	0	---	---	--	---	--	15	6	9	4.1	--
Santa Maria	231	1006.4	1015.0	69	48	58.6	-----	85	30	39	9	0	0	48	74	T	-----	T	0	0	0.0	0	8.3	W	--	---	--	17	7	6	3.7	--
COLORADO																																
Alamosa	7534	773.5	1014.2	79	41	59.8	-----	88	17	29	9	0	2	--	--	1.13	-----	.43	6	4	1.2	1	---	---	--	---	--	21	6	3	2.8	--
Colorado Springs	6175	811.4	1011.6	79	51	64.9	-----	89	17	37	3	0	0	37	44	1.59	-----	.66	9	7	T	T	12.9	SE	--	---	--	18	8	4	3.2	--
Denver	5221	836.1	1010.5	81	52	66.6	+1.3	93	24	37	4	5	0	38	45	3.32	+1.73	2.06	6	8	T	T	8.3	S	35	S	7	19	7	4	3.4	77
Grand Junction	4849	857.1	1009.4	87	55	70.8	-.6	95	27	39	8	13	0	24	21	.01	-.39	.01	1	1	0.0	0	12.4	SE	57	S	7	25	4	1	1.6	94
Pueblo	4799	855.1	1009.7	86	56	70.5	+1.9	97	24	43	4	13	0	41	42	.97	-.39	.46	6	8	T	T	8.3	NE	47	SW	7	19	6	5	3.4	77
CONNECTICUT																																
Bridgeport	7	1014.2	1015.0	76	57	66.7	-----	88	25	46	18	0	0	56	72	3.55	-----	1.49	10	2	0.0	0	8.8	SW	27	WNW	17	7	10	13	6.1	--
Hartford	15	1008.5	1014.2	79	56	67.5	+.4	92	8	44	18	4	0	56	70	3.85	+.77	.88	10	5	0.0	0	7.9	S	34	NW	17	5	9	16	6.6	75
New Haven	6	1010.5	1014.6	75	55	65.2	+1.9	88	26	44	18	0	0	--	--	3.61	+.81	1.38	11	4	0.0	0	---	---	18	NW	17	8	9	13	6.2	68
DELAWARE																																
Wilmington	73	1011.9	1014.9	81	58	69.7	-----	95	27	45	18	5	0	59	71	2.45	-----	.93	7	3	0.0	0	8.3	S	--	---	--	8	10	12	5.8	--
FLORIDA																																
Apalachicola CO	13	1015.6	------	88	75	81.3	+1.5	98	26	68	7	7	0	--	--	6.58	+.98	4.64	7	9	0.0	0	---	---	45	SE	28	12	7	11	5.0	64
Daytona Beach	33	1015.9	1017.6	91	70	80.5	+2.2	101	26	62	15	21	0	72	79	6.45	+.78	2.78	12	17	T	T	8.7	E	30	SW	29	11	11	8	5.4	--
Fort Myers	15	1016.9	------	92	71	81.7	+1.7	95	2	64	15	29	0	--	--	4.84	-4.07	1.64	14	20	T	T	---	---	--	---	--	7	16	7	5.4	--
Jacksonville	18	1015.6	1017.0	94	74	83.8	+3.3	103	27	64	14	23	0	70	69	2.19	-3.14	.93	6	11	0.0	0	6.9	SW	48	N	26	7	12	11	6.1	70
Key West CO	9	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	----	---	---	48	E	7	--	--	--	---	74
Key West	5	1016.3	1016.9	89	78	83.5	+2.5	92	19	74	9	14	0	72	72	2.32	-1.92	2.04	4	5	0.0	0	10.5	E	--	---	--	7	17	6	5.1	--
Lakeland CO	214	------	------	91	72	81.5	+1.5	97	26	68	15	21	0	--	--	6.87	-1.09	1.79	16	18	0.0	0	---	---	--	---	--	--	--	--	---	--
Melbourne	22	1016.6	1017.5	90	71	80.8	+2.2	100	26	64	16	17	0	72	78	1.44	-5.22	.53	7	15	0.0	0	9.3	ESE	23	NE	13	7	18	5	5.1	--
Miami CO	8	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	----	---	---	37	SE	7	--	--	--	---	78
Miami	8	1016.3	1017.3	89	74	81.7	-----	93	27	68	15	14	0	72	73	3.80	-----	1.70	8	7	0.0	0	7.8	SE	--	---		9	16	5	4.8	-
Orlando	111	1013.2	1017.6	94	72	83.0	+2.6	100	26	65	15	30	0	70	73	5.55	-1.60	2.47	13	20	0.0	0	8.5	SW	40	NW	23	5	15	10	6.0	--
Pensacola CO	13	1014.2	------	88	75	81.5	+2.2	100	27	64	5	12	0	--	--	2.93	-1.75	1.45	10	10	0.0	0	---	---	25	SE	7	12	8	10	5.5	80
Tallahassee	64	1014.6	1017.1	91	71	80.8	+2.0	100	27	67	1	19	0	71	77	5.51	-.60	1.05	12	16	0.0	0	3.6	SSW	--	---	--	7	11	12	6.0	--
Tampa	24	1015.9	1017.0	92	73	82.5	+2.3	98	26	66	15	27	0	71	72	6.81	-.44	2.84	11	14	T	T	7.2	SW	34	SE	10	6	18	6	5.8	62
West Palm Beach	14	1022.0	1017.3	92	72	81.9	+2.1	97	26	67	16	20	0	72	75	2.55	-5.44	.96	10	10	0.0	0	7.9	SE	--	---	--	8	17	5	5.2	--
GEORGIA																																
Albany	190	1009.8	------	94	71	82.4	+1.3	102	27	65	1	24	0	--	--	3.53	-1.09	1.15	6	10	0.0	0	---	---	40	S	7	12	11	7	4.9	--
Atlanta	977	976.0	1016.3	87	68	77.5	+.8	96	27	58	5	13	0	65	71	4.08	+.14	1.45	10	8	0.0	0	9.3	NW	40	SW	3	9	12	9	5.6	66
Athens	798	988.2	------	88	67	77.6	+.1	100	26	57	6	13	0	--	--	4.12	+.50	1.15	10	8	0.0	0	---	---	--	---	--	10	11	9	5.4	--
Augusta	426	1009.5	1016.0	92	70	81.2	+2.5	104	27	59	6	19	0	65	62	1.36	-3.72	.73	6	7	T	T	8.0	SW	--	---	--	10	10	10	5.5	--
Columbus	382	1002.7	1016.7	91	68	79.4	-----	101	27	59	5	20	0	68	72	4.33	-----	1.36	7	9	0.0	0	5.8	NW	--	---	--	10	12	8	5.4	--
Macon	354	1003.4	1016.0	93	70	81.3	-----	103	27	60	5	22	0	67	66	1.80	-----	.74	7	11	0.0	0	7.8	WNW	42	SE	7	8	10	12	5.8	79
Rome	637	993.9	1017.0	87	64	75.6	+.1	96	18	55	5	11	0	67	77	5.78	+1.04	2.30	9	9	0.0	0	6.6	N	--	---	--	6	12	12	6.1	--
Savannah	38	1014.2	1016.4	91	71	81.1	+2.9	102	24	65	1	18	0	70	71	3.71	-1.58	1.38	9	9	T	T	8.0	SW	47	SW	4	5	14	11	6.0	68
Valdosta	200	1008.8	------	93	70	81.7	+1.4	101	27	64	14	25	0	--	--	5.20	-.30	1.44	8	11	0.0	0	---	---	--	---	--	7	12	11	5.9	--
IDAHO																																
Boise	2842	919.7	1012.1	77	50	63.6	-.9	103	30	39	7	4	0	41	49	.92	0	.64	9	2	T	0	10.7	NW	42	NW	21	6	15	9	5.7	75
Lewiston	1413	962.8	1013.9	75	53	64.0	-----	93	29	41	2	3	0	48	62	4.70	-----	1.14	11	7	0.0	0	5.8	E	--	---	--	4	10	16	7.3	--
Pocatello	4444	861.2	1012.2	76	45	60.6	-.9	93	30	34	3	2	0	36	46	1.20	+.11	.44	6	1	0.0	0	8.8	SW	39	SW	1	16	7	7	4.2	73
ILLINOIS																																
Cairo CO	314	1002.4	1014.9	87	68	77.3	0	98	18	55	4	10	0	--	--	4.04	+.21	1.67	6	5	0.0	0	7.9	---	34	NW	10	--	--	--	5.7	81
Chicago	618	990.9	1013.3	80	58	69.1	+1.0	92	16	46	4	5	0	56	65	8.89	+5.41	2.35	11	7	T	T	9.9	SSW	40	W	16	9	10	11	5.7	75
Joliet	580	992.6	1013.5	80	56	67.7	-.1	91	16	42	4	1	0	58	72	7.43	+3.57	2.50	11	10	0.0	0	10.2	S	--	---	--	7	12	11	5.7	--
Moline	589	991.9	1014.2	80	59	69.6	+.3	94	25	44	4	1	0	57	66	5.11	+1.00	2.16	9	9	0.0	0	11.0	S	48	S	12	13	6	11	4.9	70
Peoria	659	991.9	1014.0	81	59	69.9	-.5	94	25	44	4	2	0	58	69	5.90	+2.13	3.47	9	9	0.0	0	11.4	S	49	W	15	12	8	10	5.1	75
Springfield	598	991.5	1014.3	81	61	70.8	+1.2	94	25	46	4	3	0	61	72	4.25	+.19	2.07	11	9	0.0	0	11.6	SSW	33	S	2	12	4	14	5.3	67
INDIANA																																
Evansville	385	1000.3	1015.9	83	63	73.1	+1.2	95	26	49	4	5	0	64	73	3.92	-.12	1.58	9	7	0.0	0	7.8	SSW	28	W	3	--	--	--	5.7	79
Fort Wayne	801	984.1	1014.9	78	56	67.4	-----	91	23	42	4	1	0	57	71	5.58	+2.01	3.22	10	8	0.0	0	7.7	SW	43	NW	16	6	10	14	6.5	62
Indianapolis	796	986.1	1015.0	79	58	68.6	-1.3	90	26	48	3	1	0	60	77	6.55	+2.93	2.89	11	11	T	T	9.4	SW	42	S	13	---	---	---	6.3	60
South Bend	768	986.1	1013.8	77	56	66.5	-2.2	91	23	42	4	1	0	57	73	8.20	+4.87	2.83	12	9	T	T	10.0	S	--	---	--	9	8	13	6.1	--
Terre Haute	585	994.6	1015.3	80	59	69.7	-2.3	91	26	46	4	3	0	61	76	6.50	+2.57	1.96	11	13	0.0	0	7.6	SSW	43	NW	16	--	--	--	5.9	68

Data from airport unless otherwise specified. CO indicates data from city office.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)
	Ft	*Mb.*	*Mb.*	°F	°F.	°F.	°F.	°F		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			0— 3	4— 7	8— 10	0—10
IOWA																															
Burlington	605	988.8	1013.9	80	59	69.2	-2.3	93	25	43	4	2	0	60	75	8.41	+3.71	4.35	10	10	T	T	10.7	SW	49	W	15	12	9	9	4.9
Charles City CO	1013	977.3	1013.5	78	56	66.8	+.3	90	25	43	4	1	0	--	--	5.20	+.57	1.83	12	9	0.0	0	7.1	---	21	SE	12	13	11	6	4.2
Davenport CO	579	991.9	------	80	61	70.5	0	92	25	48	4	2	0	--	--	5.74	+1.63	2.29	8	9	T	T	----	---	--	---	--	--	--	--	---
Des Moines CO	800	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	40	W	15	11	11	8	---
Des Moines	800	982.4	1013.1	79	59	69.0	-.6	93	25	48	4	1	0	59	71	4.82	+.06	1.88	9	8	T	T	10.6	S	--	---	--	--	--	--	5.0
Dubuque CO	641	987.8	1012.9	78	59	68.4	-1.0	90	25	45	4	1	0	--	--	7.59	+3.28	1.94	11	10	0.0	0	5.9	---	29	NE	13	--	--	--	5.9
Sioux City	1097	971.2	1011.5	81	56	68.7	-.1	94	13	42	4	7	0	56	66	4.90	+.91	1.46	9	11	T	T	9.9	SSW	49	W	14	13	13	4	4.0
KANSAS																															
Concordia	1375	962.8	1011.5	86	63	74.3	+1.3	100	13	45	4	10	0	--	--	2.36	-2.05	1.33	7	10	T	T	9.0	---	36	N	13	--	--	--	3.4
Dodge City	2594	924.8	1010.2	88	63	75.3	+2.8	101	24	48	4	15	0	55	58	1.12	-2.18	.72	5	8	T	T	15.6	S	55	SE	10	15	8	7	4.2
Goodland	3645	886.2	1010.0	87	53	70.2	+.2	102	12	37	4	14	0	47	52	.91	-1.86	.55	3	9	0.0	0	13.6	S	40	S	17	18	8	4	3.4
Topeka	926	981.0	1012.5	85	62	73.8	----	97	25	44	4	10	0	64	74	5.81	-----	2.69	7	10	T	T	11.2	SSW	35	SW	25	9	14	7	5.2
Wichita	1372	964.4	1011.7	87	65	75.7	+1.3	101	25	49	4	14	0	62	68	4.02	-.36	1.65	7	8	T	T	14.7	S	47	N	28	--	--	--	4.6
KENTUCKY																															
Lexington	978	981.0	1016.3	82	61	71.4	-.8	93	26	50	5	2	0	62	75	4.17	+.12	1.43	11	8	T	T	8.8	SW	--	---	--	8	11	11	5.8
Louisville	485	998.6	1015.3	84	62	73.1	-.4	95	26	50	4	5	0	62	71	7.01	+3.19	1.82	10	7	0.0	0	6.6	S	54	SW	18	8	10	12	5.8
LOUISIANA																															
Baton Rouge	64	1013.2	1015.8	88	71	79.6	-.5	94	17	61	5	17	0	71	80	8.92	+4.15	3.47	8	7	0.0	0	5.8	SE	--	---	--	--	--	--	5.7
Lake Charles	12	1013.9	1015.0	89	72	80.2	+.5	95	27	65	6	17	0	73	84	12.87	+8.40	6.18	10	5	0.0	0	7.4	S	--	---	--	--	--	--	5.5
New Orleans CO	12	------	------	--	--	----	----	---	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	19	SE	2	--	--	--	---
New Orleans	12	1014.6	1016.2	90	73	81.4	----	96	27	68	5	19	0	72	78	5.97	-----	4.21	8	10	0.0	0	7.1	S	--	---	--	12	12	6	4.7
Shreveport	174	1006.1	1014.9	89	71	79.9	-.6	97	27	60	6	16	0	69	76	2.72	-.78	1.25	5	3	0.0	0	8.7	SSW	38	W	21	---	--	--	5.1
MAINE																															
Caribou	624	987.1	1010.3	68	47	57.6	-.3	84	10	31	12	0	1	50	76	4.55	+.63	.93	16	6	0.0	0	13.9	SSE	50	W	18	2	11	17	7.6
Eastport CO	33	1009.5	1012.2	65	47	55.8	+.7	87	8	42	12	0	0	--	--	4.98	+2.01	2.52	10	5	0.0	0	----	---	29	SW	10	7	10	13	6.2
Portland	61	1008.5	1012.3	75	50	62.4	+2.8	92	9	37	12	1	0	53	73	1.63	-1.65	.76	8	3	0.0	0	6.2	SSW	35	SW	10	10	8	12	5.4
MARYLAND																															
Baltimore CO	14	------	------	--	--	----	----	---	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	36	NW	17	--	--	--	---
Baltimore	14	1010.5	1015.1	83	64	73.3	+.8	95	24	55	4	6	0	60	67	3.60	-.28	.97	9	4	0.0	0	8.3	S	--	---	--	13	7	10	4.9
Frederick	294	------	------	83	59	71.3	----	92	26	45	18	6	0	--	--	2.59	-----	.75	10	4	0.0	0	----	---	--	---	--	--	--	--	---
MASSACHUSETTS																															
Boston	12	1008.8	1013.2	79	59	69.1	+2.6	93	8	50	18	4	0	53	60	1.10	-1.79	.44	9	2	0.0	0	12.0	SW	39	SW	10	7	14	9	5.5
Nantucket	43	1013.9	1014.5	68	54	61.3	+.3	79	7	45	5	0	0	55	82	2.20	-.47	.70	10	4	0.0	0	12.7	SW	30	SW	4	8	11	11	6.0
Pittsfield	1153	------	------	74	50	62.0	-1.1	85	9	37	19	0	0	--	--	4.19	+.36	1.12	11	4	0.0	0	----	---	--	---	--	4	17	9	6.3
MICHIGAN																															
Alpena CO	587	989.5	1011.9	73	52	62.6	+2.2	89	23	39	18	0	0	--	--	1.96	-1.34	.60	10	8	0.0	0	10.1	---	33	S	2	6	13	11	6.1
Detroit	619	987.5	1013.8	78	58	68.2	+2.0	92	23	43	4	3	0	54	63	2.08	-1.48	.65	8	4	0.0	0	9.6	SW	37	W	30	--	--	--	6.0
Escanaba	594	988.8	1010.8	68	51	59.4	-1.3	81	9	38	17	0	0	--	--	1.13	-2.09	.38	9	4	0.0	0	10.3	---	35	NW	16	5	19	6	5.7
Grand Rapids Co	638	------	------	--	--	----	----	---	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	45	SW	26	--	--	--	---
Grand Rapids	638	988.5	1013.3	76	55	65.7	+.3	90	23	40	4	1	0	54	68	4.52	+1.04	1.49	7	5	T	T	11.1	SW	--	---	--	8	11	11	5.8
Lansing	859	982.1	1013.8	76	56	66.0	-.8	89	23	41	4	0	0	55	71	4.71	+1.20	2.49	10	8	T	T	13.7	SSW	42	W	26	--	--	--	5.4
Marquette CO	677	983.1	1010.2	71	49	60.2	+1.3	93	23	38	17	2	0	--	--	2.22	-1.00	.77	15	7	T	T	8.6	---	31	S	2	--	--	--	6.8
Muskegon	627	990.2	1013.2	73	54	63.0	-.7	88	8	40	4	0	0	54	73	3.38	+.57	1.17	11	6	T	T	10.3	SW	--	---	--	10	10	10	5.3
Sault Ste. Marie	721	988.5	1011.1	68	44	56.0	-1.5	86	8	34	4	0	0	49	76	4.25	+1.54	.85	13	7	0.0	0	8.2	NW	35	W	1	--	--	--	6.3
Ypsilanti	722	985.8	1013.8	78	56	67.4	----	91	23	43	4	4	0	54	65	2.77	-----	.94	7	6	0.0	0	9.3	SW	34	W	30	6	15	9	6.1
MINNESOTA																															
Duluth CO	1128	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	47	W	1	--	--	--	---
Duluth	1128	959.0	1010.1	70	47	58.4	----	83	5	37	3	0	0	48	70	3.51	-----	1.01	12	6	0.0	0	11.8	NW	--	---	--	3	17	10	6.7
Intern'l Falls	1179	968.5	1009.4	70	45	57.7	-4.4	89	22	35	3	0	0	48	72	7.24	+3.68	2.19	16	12	T	T	----	---	--	---	--	2	16	12	7.0
Minneapolis	830	977.7	1010.5	79	57	67.8	+.3	94	25	41	19	6	0	52	62	1.26	-2.96	.77	11	4	0.0	0	13.9	NW	48	NW	26	--	--	--	4.7
Rochester	1014	975.3	1011.9	79	54	66.5	-1.1	92	25	38	3	5	0	52	62	1.67	-2.92	1.34	4	5	T	T	12.2	S	--	---	--	10	12	8	5.4
St. Cloud	1034	972.9	1010.4	79	52	65.1	-.5	96	6	38	17	4	0	50	60	1.33	-2.88	.65	10	8	0.0	0	11.7	W	--	---	--	7	16	7	5.1
St. Paul	703	984.8	1010.7	80	57	68.4	+1.3	95	25	44	19	5	0	53	61	1.54	-2.60	.70	11	5	0.0	0	12.5	SE	35	W	25	9	14	7	5.2
MISSISSIPPI																															
Jackson	315	1004.4	1016.1	90	69	79.7	+.1	99	17	58	5	20	0	68	72	3.47	-.66	1.42	8	2	0.0	0	6.3	S	45	S	3	13	8	9	4.8
Meridian	294	1003.1	1016.2	90	68	79.1	+1.9	98	18	57	5	19	0	68	74	3.02	-1.53	1.22	9	5	0.0	0	5.1	SW	--	---	--	12	6	12	5.6
Vicksburg	234	1007.1	------	87	70	78.6	-.4	95	17	58	5	13	0	--	--	4.20	+.21	1.38	9	1	0.0	0	----	---	35	S	3	10	10	10	5.3
MISSOURI																															
Columbia CO	733	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	--	---	--	--	--	--	---
Columbia	733	985.8	1013.8	83	62	72.3	-.4	94	25	46	4	7	0	63	76	3.45	-1.31	2.15	9	8	0.0	0	8.9	S	25	N	15	--	--	--	5.1
Kansas City	741	986.1	1012.8	86	65	75.2	+1.6	97	25	48	4	11	0	62	66	2.63	-2.05	1.19	10	10	0.0	0	9.9	SSW	36	S	22	--	--	--	5.0
St. Joseph	809	978.3	1012.4	85	62	73.8	+.1	99	25	46	4	11	0	61	70	2.16	-2.79	.99	6	8	T	T	10.9	S	32	W	9	10	14	6	4.8
St. Louis CO	465	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	41	SW	23	--	--	--	---
St. Louis	465	994.2	1014.3	84	64	74.1	+.1	96	25	51	4	7	0	62	68	3.26	-1.03	1.41	13	9	0.0	0	7.8	S	--	---	--	--	--	--	5.7
Springfield	1265	967.8	1014.5	83	63	72.6	+.9	94	25	47	4	9	0	63	75	3.69	-.99	1.66	10	9	0.0	0	11.5	SSE	38	N	28	12	9	9	5.0
MONTANA																															
Billings	3568	890.3	1012.8	73	49	60.9	-4.1	88	30	32	8	0	2	42	56	1.98	-----	.71	10	6	2.0	2	11.4	SSW	49	W	12	7	13	10	6.0
Butte	5553	829.7	1016.2	67	38	52.2	-3.5	85	30	23	3	0	6	37	63	2.06	-.23	.44	17	13	.4	T	9.3	NW	--	---	--	2	12	16	7.4
Glasgow CO	2090	938.4	1012.2	75	48	61.6	-2.4	94	21	32	8	1	1	44	57	6.95	+4.00	1.70	13	8	1.3	T	----	---	--	---	--	6	12	12	6.3
Great Falls	3663	887.9	1013.8	69	48	58.5	-3.9	88	30	31	7	0	2	40	57	2.76	-.37	1.16	12	6	11.1	4	12.0	SW	49	SW	5	8	6	16	6.6
Havre CO	2488	925.2	1013.2	73	49	60.9	-1.1	89	20	32	7	0	2	--	--	3.90	+1.04	1.64	12	5	2.0	2	9.0	---	34	W	22	8	11	11	5.8
Helena	3893	873.7	1014.8	70	44	56.9	-2.3	90	30	32	3	1	2	42	63	2.18	+.14	.57	12	11	1.5	2	7.3	W	52	SE	14	4	12	14	6.8
Kalispell	2965	911.3	1013.8	70	45	57.5	----	88	30	33	10	0	0	42	--	3.56	-----	1.24	12	3	T	T	8.8	S	--	---	--	6	7	17	7.0
Miles City CAA	2629	928.9	1012.4	76	48	61.9	----	90	21	32	8	1	1	45	--	3.99	---	1.63	10	6	T	T	10.7	WNW	--	---	--	8	11	11	5.4
Missoula	3201	901.5	1014.8	70	45	57.4	-2.2	90	30	34	3	1	0	43	65	2.35	+.5	.66	16	7	0.0	0	5.9	NW	45	NE	1	3	9	18	7.3
NEBRASKA																															
Grand Island	1841	946.2	1010.7	83	57	69.9	----	101	12	38	4	8	0	54	62	3.51	-----	1.65	10	9	T	T	10.5	S	--	---	--	15	10	5	3.8
Lincoln CO	1184	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	31	SW	22	--	--	--	---
Lincoln	1180	969.9	1011.7	84	59	71.3	+.7	100	23	40	4	9	0	56	64	2.31	-2.01	1.17	9	9	0.0	0	10.1	S	--	---	--	--	--	--	4.2
Norfolk	1554	957.3	1011.8	81	57	68.8	-1.0	96	13	40	4	7	0	54	64	4.24	-.49	1.95	9	8	T	T	13.2	NNW	--	---	--	--	--	--	3.4
North Platte	2783	914.0	1010.8	83	54	68.4	+.9	98	12	36	4	7	0	51	61	1.17	-2.05	.47	6	6	0.0	0	11.4	SSE	46	N	13	18	10	2	3.1
Omaha	978	973.2	1012.1	83	60	71.5	+.8	98	25	44	4	8	0	57	63	1.69	-2.87	.65	7	10	T	T	11.4	S	56	S	13	--	--	--	4.2
Scottsbluff	3950	878.4	1011.4	82	51	66.7	+.1	95	6	39	4	7	0	45	54	.59	-2.04	.27	9	6	T	T	9.1	WNW	--	---	--	16	10	5	3.5
Valentine CO	2581	921.4	1011.9	80	52	66.4	-.5	98	22	38	1	5	0	--	--	2.35	-.52	1.56	11	13	0.0	0	9.5	---	42	N	14	16	10	4	4.0
NEVADA																															
Elko	5075	843.6	1012.8	79	38	58.2	----	98	30	26	9	3	6	34	44	.35	-----	.18	3	2	T	0	6.7	SW	--	---	--	19	7	4	3.3
Ely	6257	808.0	1012.2	78	36	56.7	+.9	92	29	19	8	3	9	--	--	.04	-.58	.04	1	3	.2	T	12.3	---	47	S	6	16	13	1	2.6
Las Vegas	2162	933.0	1006.9	98	65	81.3	+.3	114	30	50	9	28	0	17	11	T	-.14	T	0	0	0.0	0	9.5	SW	--	---	--	27	3	0	.6
Reno	4404	861.2	1012.9	79	42	60.4	-.7	100	30	27	8	4	1	35	43	.73	+.44	.61	4	3	T	0	6.8	WNW	43	W	6	19	9	2	3.0
Winnemucca	4299	866.2	1013.6	80	44	61.9	-.9	104	30	32	13	6	2	30	36	.97	+.25	.59	7	1	0.0	0	9.5	---	53	W	11	11	12	7	4.7

Data from airport unless otherwise specified. CO indicates data from city office.

CLIMATOLOGICAL DATA

Table 2--Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days Max. 90° F or above	Temperature: No. of days Min 32° F or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days .01 inch or more	Precipitation: No. of days With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile Speed	Wind: Fastest mile Direction	Wind: Fastest mile Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F.	°F	°F	°F.		°F.				°F	%	In.	In.	In			In.	In.	M p h		M p h			0-3	4-7	8-10	0-10	%
NEW HAMPSHIRE																																
Concord	339	1002.0	1012.6	80	50	65.3	+3.6	93	9	36	19	4	0	53	65	2.94	-.25	.94	6	3	0.0	0	5.7	S	29	W	17	6	16	8	5.8	67
Mt. Washington	6262	806.6	1018.0	51	37	43.9	-1.5	64	26	21	18	0	10	--	--	5.49	-.77	2.12	13	4	1.0	1	----	---	--	---	--	2	7	21	8.2	26
NEW JERSEY																																
Atlantic City CO	8	1012.9	1014.6	74	62	67.7	+1.1	88	25	50	18	0	0	--	--	3.11	+.07	.93	12	5	0.0	0	----	---	31	S	3	11	6	13	5.5	75
Newark	11	1013.2	1014.5	81	60	70.5	+.6	98	27	49	18	8	0	56	62	2.35	-1.54	.96	10	3	0.0	0	10.4	SW	35	NNW	10	8	12	10	5.9	--
Trenton CO	56	1007.8	1014.6	80	60	69.9	+.4	93	26	50	18	5	0	--	--	2.15	-.94	.94	10	3	0.0	0	----	---	30	SW	4	11	9	10	5.3	68
NEW MEXICO																																
Albuquerque	5310	846.9	1007.4	91	61	76.1	+3.5	98	16	45	5	20	0	33	27	.23	-.26	.16	4	4	T	T	10.8	S	49	SE	17	19	8	3	2.9	87
Clayton	4969	845.9	1011.5	86	56	70.5	+.7	97	14	44	4	12	0	50	59	4.51	+2.66	2.26	10	13	T	0	16.4	SSW	--	---	--	15	11	4	3.2	--
Raton	6379	806.3	1010.5	82	50	65.7	----	93	15	37	9	5	0	40	48	2.74	-----	.87	8	14	1.6	2	10.1	SW	--	---	--	15	10	5	3.7	--
Roswell	3611	889.9	1009.1	95	63	79.1	+2.8	104	26	48	5	25	0	47	42	2.17	+.50	1.13	4	14	0.0	0	11.1	SSE	52	SW	10	13	13	4	4.0	85
NEW YORK																																
Albany	277	1009.1	1012.8	78	54	66.1	-.6	92	26	38	19	4	0	54	67	2.27	-.80	.69	10	4	0.0	0	9.0	S	44	W	17	3	17	10	6.2	71
Bear Mountain	1300	------	------	75	56	65.3	----	90	8	41	18	1	0	--	--	3.77	-----	1.02	10	3	0.0	0	----	---	--	---	--	5	14	11	6.1	--
Binghamton CO	858	------	------	--	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	---	----	---	---	---	--	---	---	---	---	59
Binghamton	858	983.4	1014.2	76	50	63.3	----	91	26	38	12	1	0	56	76	3.12	-----	.88	12	6	0.0	0	5.4	SW	20	W	17	3	12	15	7.2	--
Buffalo	693	986.1	1013.8	76	55	65.0	+.1	87	25	40	18	0	0	54	69	2.04	-.78	.86	9	4	T	T	13.2	SW	48	SW	16	7	14	9	5.7	76
Canton CO	406	995.3	1011.2	76	54	64.6	+1.1	88	25	39	18	0	0	--	--	1.01	-2.28	.44	6	2	0.0	0	----	---	25	W	27	6	13	11	6.3	49
New York CO	10	------	------	--	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	---	----	---	---	---	--	---	---	---	---	69
New York	10	1012.9	1014.5	80	61	70.4	----	94	26	49	18	6	0	55	62	2.40	-----	.89	11	2	0.0	0	10.9	NW	45	NW	17	6	12	12	6.0	--
Oswego	292	1000.7	1012.9	74	55	64.4	+1.5	88	9	45	4	0	0	--	--	2.64	-.61	1.60	10	4	0.0	0	----	---	22	W	17	10	11	9	5.2	70
Rochester	543	994.6	1013.5	78	54	65.9	-.2	92	9	38	18	4	0	53	65	4.00	+1.00	2.86	12	5	0.0	0	10.3	SW	45	SW	6	6	14	10	6.0	76
Syracuse	399	991.9	1013.3	77	54	65.7	+1.2	91	9	42	19	1	0	54	65	2.48	-1.39	.87	10	6	0.0	0	9.5	W	40	NW	17	3	16	11	6.5	64
NORTH CAROLINA																																
Asheville CO	2203	------	------	82	61	71.3	+2.6	92	24	48	6	2	0	--	--	3.06	-.87	.69	12	7	0.0	0	----	---	22	NW	14	5	17	8	5.5	79
Charlotte CO	741	------	------	--	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	---	----	---	29	SW	4	--	--	--	---	74
Charlotte	741	989.5	1016.5	88	66	76.7	+2.4	99	27	52	6	11	0	64	67	4.97	+.75	1.63	13	12	0.0	0	7.7	SW	--	---	--	5	14	11	5.9	--
Greensboro	891	985.4	1016.7	85	64	74.4	+.4	96	27	53	5	8	0	62	70	5.05	+.19	1.30	10	10	0.0	0	7.2	SW	39	N	25	7	13	10	5.5	72
Hatteras	4	1015.6	1015.9	81	70	75.6	0.0	92	25	63	6	1	0	68	79	8.85	+4.33	2.19	10	10	0.0	0	11.0	S	34	SW	21	3	14	13	6.8	71
Raleigh CO	400	------	------	--	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	---	----	---	31	SW	4	--	--	--	---	61
Raleigh	400	1000.7	1016.2	87	63	75.2	----	97	19	50	6	9	0	63	71	5.62	-----	2.05	13	11	0.0	0	5.3	SW	--	---	--	9	12	9	5.4	--
Wilmington CO	[illegible]	1014.9	1016.3	87	70	78.1	+1.3	97	24	60	6	11	0	--	--	7.05	+1.95	3.35	12	12	0.0	0	----	---	31	N	17	10	12	8	5.6	76
Winston-Salem	967	982.1	1016.6	86	64	74.8	+.8	97	25	52	5	9	0	61	66	3.31	-1.04	86	9	9	0.0	0	6.0	WSW	--	---	--	10	11	9	5.4	--
NORTH DAKOTA																																
Bismarck	1653	951.6	1010.4	79	50	64.2	+1.3	95	21	33	3	5	0	47	60	1.53	-1.82	.67	7	7	0.0	0	14.0	WNW	47	NE	7	11	7	12	5.6	64
Devils Lake CO	1471	957.0	1009.5	73	50	61.5	-.4	89	6	34	3	0	0	--	--	2.53	-1.03	1.23	15	7	0.0	0	10.3	---	34	NE	8	9	11	10	5.5	59
Fargo	895	975.3	1009.0	79	53	65.6	+1.2	99	6	37	3	3	0	48	58	2.29	-1.76	.94	12	10	T	T	15.8	NNW	66	NW	22	--	--	--	5.3	63
Williston CO	1877	944.5	1010.4	73	49	61.2	-1.5	91	21	37	8	1	0	45	61	4.88	+1.45	1.57	12	9	T	T	8.9	---	37	W	22	5	12	13	6.6	77
OHIO																																
Akron	1210	971.2	1015.5	77	54	65.7	-2.7	89	26	39	18	0	0	56	73	6.29	+2.53	2.22	10	6	0.0	0	7.8	SW	--	---	--	8	11	11	5.9	--
Cincinnati CO	553	------	------	--	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	---	----	---	---	---	--	---	---	---	---	60
Cincinnati	553	984.4	1015.7	79	60	69.3	----	92	26	46	4	1	0	60	74	5.03	-----	1.64	13	7	0.0	0	7.5	SW	--	---	--	8	9	13	6.4	--
Cleveland	787	987.1	1014.6	79	57	68.1	+.4	93	25	41	18	2	0	56	68	3.77	+.65	1.80	11	4	0.0	0	10.4	S	33	W	9	6	16	8	5.8	65
Columbus CO	724	------	------	--	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	---	----	---	---	---	--	---	---	---	---	64
Columbus	724	985.8	1015.1	80	57	68.4	-.7	94	26	45	12	3	0	58	71	2.28	-1.03	.91	12	5	0.0	0	7.5	SSW	20	S	2	8	6	16	6.4	--
Dayton	1002	979.0	1015.4	78	58	68.1	-2.8	90	26	46	4	1	0	58	73	4.29	+.50	1.11	10	6	0.0	0	10.0	SSW	78	NW	16	7	8	15	6.4	59
Sandusky	603	992.6	------	79	60	69.7	+.9	92	23	47	18	3	0	--	--	4.77	+1.28	1.73	8	3	0.0	0	----	---	27	NE	1	8	10	12	5.9	65
Toledo	621	992.2	1014.4	79	57	68.2	+1.0	91	23	45	4	2	0	57	69	4.80	+1.47	2.19	12	8	0.0	0	10.2	SW	35	NW	9	5	13	12	6.6	64
Youngstown	1178	972.6	1015.1	77	54	65.6	-1.4	90	26	36	18	1	0	55	70	3.91	+.53	1.60	15	5	0.0	0	9.9	SW	30	WNW	1	9	12	9	5.5	--
OKLAHOMA																																
Oklahoma City CO	1254	------	------	--	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	---	----	---	34	NW	10	--	--	--	---	71
Oklahoma City	1254	933.6	1012.7	85	67	75.9	-.1	94	26	51	4	7	0	65	75	2.06	-1.61	1.31	6	7	0.0	0	15.4	S	--	---	--	--	--	--	4.5	--
Tulsa	672	989.5	1013.0	86	67	76.5	0	99	26	52	4	12	0	65	73	2.78	-1.67	1.27	9	7	0.0	0	11.8	S	45	N	10	--	--	--	5.2	66
OREGON																																
Baker AP CAA	3369	------	------	--	--	----	----	---	--	---	--	--	--	42	--	----	-----	----	--	--	----	---	----	NNW	--	---	--	--	--	--	---	--
Baker CO	3446	894.7	1014.9	71	44	57.6	-1.0	92	29	35	3	2	0	--	--	2.37	+1.03	.92	11	7	T	T	6.0	---	27	SW	20	3	17	10	6.4	59
Burns CO	4143	872.7	1014.0	73	43	58.0	-.5	95	30	31	25	2	1	37	51	1.05	+.10	.45	6	2	T	0	----	---	--	---	--	7	10	13	6.1	--
Eugene	364	1003.4	1017.2	74	50	62.0	----	93	3	41	8	2	0	49	69	1.27	-----	.42	9	1	0.0	0	7.2	N	--	---	--	3	6	21	7.8	--
Meacham	4050	876.7	1016.5	64	43	53.6	----	84	29	31	7	0	1	42	69	3.21	-----	1.54	11	6	1.6	1	5.6	WNW	--	---	--	2	8	20	7.9	--
Medford	1314	968.5	1015.5	78	50	63.9	-1.9	96	29	39	8	6	0	45	57	1.27	+.51	.73	7	3	T	T	7.5	NW	--	---	--	5	11	14	6.9	--
Pendleton	1489	961.4	1014.5	75	53	63.8	-.1	94	29	44	7	3	0	45	55	1.64	+.66	.83	8	5	0.0	0	8.9	W	--	---	--	4	9	17	7.3	--
Portland CO	30	------	------	--	--	----	----	---	--	---	--	--	--	--	--	1.50	-.02	----	--	--	----	---	----	---	---	---	--	--	--	--	---	--
Portland	30	1015.6	1017.0	71	52	61.8	+.7	88	3	45	2	0	0	50	71	2.50	-----	.78	10	2	0.0	0	5.7	NW	29	SW	10	3	5	22	7.9	38
Roseburg CO	479	998.3	1016.9	74	52	62.9	+.4	98	3	42	8	2	0	--	--	1.92	+.83	1.03	8	1	T	T	4.8	---	18	NW	2	3	10	17	7.5	55
Salem	195	1009.5	1016.9	74	51	62.2	+.4	94	3	41	25	1	0	49	69	2.80	+1.59	1.60	12	2	0.0	0	4.7	S	--	---	--	4	6	20	7.9	--
Sexton Summit CO	3836	------	------	66	45	55.6	----	83	28	32	6	0	2	--	--	2.27	-----	1.79	8	1	T	T	----	---	--	---	--	7	9	14	6.8	--
Troutdale	29	------	------	73	51	61.8	----	90	3	41	2	1	0	50	72	1.84	-----	.51	11	3	T	T	5.6	WNW	--	---	--	3	6	21	7.9	--
PENNSYLVANIA																																
Allentown	381	1001.0	1014.8	81	56	68.5	-1.3	94	26	45	5	7	0	56	68	2.07	-1.93	.91	10	2	0.0	0	7.5	SW	--	---	--	10	8	12	5.7	--
Burwensville	2215	------	------	74	50	62.0	----	87	26	35	18	0	0	54	75	4.66	-----	1.58	14	7	0.0	0	9.5	WNW	22	WNW	5	7	12	11	6.3	--
Erie CO	655	------	------	75	60	67.4	+1.2	89	23	46	18	0	0	--	--	2.19	-1.15	.99	9	4	0.0	0	----	---	23	W	10	9	15	6	5.1	56
Harrisburg	335	1001.4	1014.7	80	59	69.7	-.6	93	26	47	5	0	3	57	66	1.68	-1.91	1.04	9	4	0.0	0	5.8	WNW	29	NW	17	6	13	11	5.7	67
Park Place	1932	------	------	72	54	63.4	----	87	26	38	18	0	0	--	--	4.09	-----	92	14	2	0.0	0	----	---	--	---	--	10	10	10	5.8	--
Philadelphia CO	26	------	------	--	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	---	----	---	---	---	--	--	--	--	---	66
Philadelphia	26	1013.5	1014.8	81	61	71.1	+.5	93	24	48	18	6	0	58	68	2.36	-.88	.56	12	3	0.0	0	8.5	SW	30	WNW	24	8	10	12	6.0	--
Pittsburgh	1248	985.1	1015.2	79	59	68.8	+.2	92	26	43	18	1	0	55	65	5.86	+2.05	3.23	10	4	0.0	0	8.9	S	27	SW	3	4	18	8	6.3	55
Reading CO	266	1003.1	1014.6	80	61	70.5	+.2	94	26	50	18	4	0	--	--	1.63	-1.92	.44	8	4	0.0	0	----	---	39	NW	17	8	10	12	5.8	73
Scranton CO	746	985.4	1014.2	77	56	66.6	-1.2	92	26	43	5	2	0	--	--	3.73	+.06	.95	11	1	0.0	0	----	---	40	NW	17	12	9	9	4.9	62
Williamsport	527	995.6	1014.5	79	55	66.8	-2.3	91	26	43	5	3	0	56	71	2.44	-1.27	.64	10	6	0.0	0	5.8	W	37	S	2	7	10	13	6.1	--
RHODE ISLAND																																
Block Island CO	35	1013.5	1014.6	69	56	62.5	+.7	81	26	50	5	0	0	--	--	2.13	-.49	.74	10	4	T	T	----	---	36	NW	17	9	11	10	5.7	64
Providence	55	1008.5	1014.2	77	56	66.2	+.1	91	8	45	18	1	0	54	67	2.02	-.66	.62	11	5	0.0	0	8.5	SW	36	SW	10	9	11	10	5.6	67
SOUTH CAROLINA																																
Charleston CO	9	------	------	--	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	---	----	---	40	E	12	--	--	--	---	80
Charleston	9	1014.9	1016.2	89	70	79.5	+2.3	99	27	57	6	14	0	70	76	3.47	-1.72	.87	9	11	0.0	0	5.9	S	--	---	--	7	15	8	5.6	--
Columbia CO	332	------	------	--	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	----	---	----	---	39	S	29	--	--	--	---	76
Columbia	332	1007.8	1015.7	92	69	80.6	----	104	27	54	6	17	0	66	67	3.55	-----	2.29	7	12	0.0	0	6.1	SW	--	---	--	10	10	10	5.3	--
Florence	146	1010.5	1016.1	90	68	79.0	----	101	27	54	6	14	0	67	73	3.41	-----	.91	13	16	0.0	0	6.9	SW	--	---	--	8	10	12	5.7	--
Greenville	1006	979.3	1015.9	87	67	76.8	+2.7	98	26	58	6	12	0	64	68	3.11	-1.44	1.36	12	9	T	T	7.6	SW	49	N	14	6	11	13	6.5	69
Spartanburg	801	987.1	1016.5	87	67	77.0	+.7	98	26	54	6	11	0	64	68	1.90	-2.16	.66	11	8	0.0	0	7.8	SW	90	W	3	6	14	10	6.1	--
SOUTH DAKOTA																																
Huron	1282	964.1	1010.4	82	53	67.6	+1.4	97	22	37	3	8	0	50	58	.67	-3.12	.49	5	6	0.0	0	13.7	NW	54	NW	25	14	12	4	4.3	87
Rapid City	3215	899.8	1011.6	78	50	63.9	-.3	97	6	40	1	3	0	47	58	.90	-2.14	.44	7	11	0.0	0	14.4	NNW	59	SW	23	14	10	6	4.6	72
Sioux Falls	1420	961.4	1012.3	79	54	66.3	-1.7	92	13	41	3	4	0	53	64	3.65	-.73	1.05	8	8	T	T	11.5	S	--	---	--	13	12	5	4.0	--

Data from airport unless otherwise specified. CO indicates data from city office.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F or above	Temperature: No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb.*	*Mb.*	°F	°F	°F.	°F.	°F		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			*0—3*	*4—7*	*8—10*	*0—10*	%
TENNESSEE																																
Bristol	1519	963.4	1016.8	82	61	71.3	-1.7	89	26	43	5	0	0	62	76	4.86	+1.03	1.20	17	10	0.0	0	5.8	SW	--	---	--	5	15	10	6.4	--
Chattanooga	670	989.5	1016.3	87	65	75.9	+2.7	96	26	55	6	11	0	66	75	6.77	+2.61	1.34	10	8	0.0	0	5.0	S	28	S	20	9	9	12	6.3	52
Knoxville	949	982.1	1016.5	85	65	74.8	+1.0	94	26	51	5	10	0	64	73	3.10	-1.00	.90	13	7	0.0	0	8.6	SW	40	SW	3	4	16	10	6.1	63
Memphis CO	271	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	28	N	27	---	---	---	---	85
Memphis	263	1001.4	1015.1	88	68	77.9	+1.5	98	26	54	5	12	0	66	69	2.77	-.78	1.61	7	3	0.0	0	8.5	SSW	--	---	--	8	14	8	5.7	--
Nashville	577	996.6	1015.9	86	66	75.9	+.3	95	16	50	5	10	0	65	72	4.69	+.69	2.07	10	6	0.0	0	7.1	S	25	S	3	9	13	8	5.4	62
TEXAS																																
Abilene	1752	952.3	1011.3	90	68	79.2	+1.6	100	24	56	6	20	0	63	63	1.50	-1.49	.76	4	5	T	T	14.2	S	47	N	21	12	11	7	4.6	80
Amarillo	3590	887.6	1009.5	90	62	75.8	+4.4	101	25	50	3	20	0	53	56	3.25	+.41	1.27	8	12	0.0	0	13.9	S	42	NW	20	--	--	--	4.4	77
Austin	515	992.6	1013.5	90	71	80.3	-.9	98	29	61	5	20	0	70	76	1.98	-.46	1.03	5	2	T	0	8.6	SE	32	SE	5	--	--	--	5.3	63
Big Spring	2533	924.8	1011.3	91	68	79.1	-1.4	100	25	53	4	22	0	60	59	1.56	-.35	1.44	4	7	T	T	14.8	S	--	---	--	11	13	6	4.5	--
Brownsville	16	1010.5	1012.2	90	76	83.1	+.7	93	29	71	30	25	0	74	81	7.58	+4.41	7.52	4	1	0.0	0	11.3	SE	28	SE	22	--	--	--	5.0	66
Corpus Christi	40	1012.9	1013.4	91	74	82.8	+3.3	94	28	70	29	24	0	74	83	1.58	-1.01	1.15	3	2	0.0	0	11.8	SSE	33	SE	22	10	14	6	5.0	76
Dallas	487	996.3	1013.6	90	71	80.4	0	97	27	59	4	20	0	67	69	4.49	+.58	1.77	5	2	0.0	0	10.8	S	33	S	23	--	--	--	4.8	69
Del Rio CO	957	978.3	1010.5	91	72	81.5	-1.9	97	29	66	2	21	0	68	68	1.47	-1.08	.90	4	3	0.0	0	10.3	---	23	E	29	6	14	10	6.0	62
El Paso	3920	883.2	1006.7	96	69	82.5	+4.5	103	19	58	5	26	0	47	35	.11	-.47	.05	3	8	0.0	0	10.5	S	45	NW	27	--	--	--	3.8	77
Fort Worth	688	989.8	1013.4	90	71	80.2	+.3	98	24	59	4	20	0	66	68	3.16	-.19	1.11	4	3	0.0	0	14.1	S	42	WNW	29	--	--	--	4.5	--
Galveston CO	7	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	42	SW	3	--	--	--	---	65
Galveston	7	1014.6	1015.0	87	76	81.1	+.4	92	29	65	3	3	0	73	79	20.57	+16.20	14.17	9	8	0.0	0	11.3	SE	--	---	--	12	12	6	5.1	--
Houston CO	41	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	30	NE	5	--	--	--	---	56
Houston	41	1012.5	1014.6	89	72	80.3	+.4	96	28	62	5	15	0	72	81	7.10	+3.78	2.23	9	6	0.0	0	9.0	SE	--	---	--	4	18	8	6.0	--
Laredo	500	996.6	1011.0	97	75	85.7	+.3	102	24	71	1	28	0	75	66	1.13	-.79	.80	5	5	0.0	0	14.0	SE	--	---	--	--	--	--	6.0	--
Lubbock	3238	901.8	1010.0	90	65	77.5	+1.3	101	25	52	5	20	0	58	59	.68	-1.79	.47	6	12	0.0	0	14.3	S	--	---	--	--	--	--	4.2	--
Palestine CO	491	997.3	1014.9	86	71	78.4	-.6	92	27	62	6	11	0	--	--	3.33	-.30	1.30	5	5	0.0	0	6.9	---	26	NW	29	9	13	8	5.3	75
Port Arthur CO	5	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	61	SE	3	--	--	--	---	65
Port Arthur	5	1013.9	1014.5	88	71	79.7	----	95	28	62	5	14	0	73	84	10.58	-----	4.52	8	10	0.0	0	8.1	S	--	---	--	13	9	8	5.3	--
San Angelo	1903	946.5	1011.7	89	69	78.9	-2.0	98	27	55	5	20	0	61	61	1.28	-.69	1.03	2	3	0.0	0	10.1	SSE	27	NNW	5	11	10	9	4.9	--
San Antonio	782	989.2	1013.1	91	71	80.7	-.3	97	24	62	15	21	0	68	73	1.03	-1.43	.65	6	3	0.0	0	9.9	SE	31	SE	1	--	--	--	5.5	56
Victoria	109	1009.1	1013.8	92	73	82.7	+.5	99	29	66	6	24	0	72	79	2.12	-1.09	1.60	7	4	0.0	0	10.3	SE	--	---	--	4	16	10	5.9	--
Waco	504	995.3	1012.9	90	71	80.4	-2.0	97	27	58	6	20	0	68	71	2.96	-.22	1.63	6	4	T	T	11.7	S	--	---	--	12	9	9	4.9	--
Wichita Falls	1027	976.6	1012.0	89	69	79.0	-2.7	100	27	56	4	19	0	65	66	3.93	+.44	1.93	6	6	0.0	0	12.8	S	42	W	2	--	--	--	4.2	--
UTAH																																
Milford	5029	844.2	1010.9	85	43	63.9	-1.9	98	30	32	17	8	1	25	26	T	-.26	T	0	0	T	0	10.2	SSW	--	---	--	26	4	0	1.3	--
Salt Lake City	4222	868.9	1010.4	82	50	66.0	+.3	96	30	36	9	4	0	33	35	.16	-.57	.16	1	1	T	0	10.0	SSE	47	SE	7	20	6	4	2.8	84
VERMONT																																
Burlington	398	996.6	1011.3	78	56	67.1	+1.4	91	9	40	12	1	0	54	64	2.38	-1.00	.82	10	6	0.0	0	11.1	S	36	SW	16	5	11	14	6.5	76
VIRGINIA																																
Cape Henry CO	16	1014.5	1015.2	80	66	73.2	+.3	93	20	57	6	5	0	--	--	1.99	-1.97	.92	8	7	0.0	0	-----	---	34	N	27	12	8	10	4.9	84
Lynchburg	947	982.7	1015.8	83	62	72.6	-.5	93	27	50	5	5	0	60	69	2.88	-.91	1.20	11	6	0.0	0	8.2	SSW	26	N	17	7	14	9	5.4	68
Norfolk CO	11	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	26	W	4	---	---	---	---	74
Norfolk	11	1014.9	1016.0	83	64	73.8	+1.1	97	27	55	13	6	0	63	72	2.81	-1.41	.81	9	6	0.0	0	10.2	SW	--	---	--	11	11	8	5.2	--
Richmond	162	1009.5	1015.5	86	62	74.2	+1.0	100	27	48	5	8	0	63	71	.99	-----	.39	6	6	0.0	0	7.3	SSW	34	SW	13	8	13	9	5.5	--
Roanoke	1192	974.6	1016.1	83	60	71.4	-.5	92	26	46	5	5	0	60	69	2.73	-1.63	.82	14	8	0.0	0	8.7	W	--	---	--	9	12	9	5.7	--
Urbanna	31	1014.6	1015.9	84	63	73.3	----	99	27	49	5	6	0	--	--	1.31	-----	.46	9	5	0.0	0	----	---	--	---	--	8	12	10	5.8	--
Wash.Nat'l. AP	14	1011.5	1015.6	83	65	73.9	+1.7	96	24	53	5	4	0	60	65	3.14	-.99	1.10	9	2	0.0	0	9.3	SSW	31	NW	10	14	6	10	5.0	65
WASHINGTON																																
Ellensburg	1727	952.9	1014.8	74	48	60.8	-1.0	90	29	38	2	2	0	44	60	1.37	+.75	.41	9	7	0.0	0	13.8	NW	--	---	--	7	6	17	7.0	--
Kelso	17	------	------	73	49	60.9	----	87	3	37	2	0	0	--	--	1.29	-----	.38	9	1	0.0	0	----	---	--	---	--	3	5	22	8.0	--
North Head CO	194	1009.8	1017.3	61	51	56.4	+1.6	80	3	46	1	0	0	--	--	.90	-1.38	.39	17	0	0.0	0	11.6	---	33	NW	1	1	7	22	8.3	27
Olympia	190	1009.5	1016.9	72	48	60.1	----	88	16	38	6	0	0	48	71	.86	-----	.42	9	0	0.0	0	5.3	SSW	--	---	--	5	6	19	7.5	--
Port Angeles	8	1016.3	1017.5	61	49	55.0	----	75	16	45	6	0	0	47	79	.43	-----	.28	4	1	0.0	0	10.9	W	--	---	--	7	5	18	7.0	--
Seattle CO	14	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	-----	---	38	SW	22	--	--	--	---	4
Seattle	14	1015.6	1016.8	72	53	62.6	+1.8	87	3	46	5	0	0	48	66	.51	-.88	.27	7	0	0.0	0	8.7	SW	--	---	--	6	5	19	7.4	--
Spokane	2357	945.8	1014.5	72	50	61.0	-1.8	91	29	41	8	2	0	43	57	2.84	+1.56	1.03	10	5	0.0	0	8.7	SSW	28	SW	22	4	11	15	7.1	6
Stampede Pass CO	3960	880.1	1018.5	56	42	48.6	----	75	28	28	5	0	2	--	--	2.68	-----	.85	15	2	.5	69	11.8	---	36	W	22	6	3	21	7.6	--
Stevenson CO	319	------	------	70	53	61.7	----	86	3	46	5	0	0	--	--	1.31	-----	.39	9	2	0.0	0	-----	---	--	---	--	3	5	22	8.3	--
Tacoma CO	127	1009.8	1016.6	69	52	60.6	+1.9	85	16	45	5	0	0	--	--	.30	-1.16	.18	9	0	0.0	0	7.6	---	33	SW	22	9	6	15	6.3	4
Tatoosh CO	101	1014.6	1017.6	57	48	52.7	-.3	68	2	43	6	0	0	48	86	1.75	-1.45	.79	11	1	0.0	0	10.9	SW	32	S	7	0	7	23	8.5	4
Walla Walla APCAA	1200	------	------	--	--	----	----	--	--	--	--	--	--	48	--	----	-----	----	--	--	---	---	-----	E	--	---	--	---	---	---	---	--
Walla Walla CO	949	978.7	1014.2	76	56	65.8	-.7	97	29	46	6	3	0	--	--	2.66	+1.54	1.61	9	2	0.0	0	5.2	---	26	W	22	8	9	13	6.2	5
Yakima	1058	975.6	1014.1	79	50	64.6	-.4	98	29	39	3	6	0	46	56	1.60	+1.26	.46	10	4	0.0	0	7.9	NW	--	---	--	6	9	15	6.9	--
Seattle-Tacoma AP	379	1002.7	1016.8	70	51	60.2	----	84	3	43	5	0	0	48	70	.59	-----	.29	13	0	0.0	0	9.5	SW	--	---	--	6	5	19	7.4	--
WEST VIRGINIA																																
Elkins	1969	948.5	1016.5	77	52	64.4	-1.2	87	26	40	5	0	0	57	78	7.33	+2.27	2.92	15	10	0.0	0	4.1	WNW	23	W	19	3	10	17	7.0	5
Huntington CO	565	------	------	85	61	72.7	+1.8	93	26	49	5	6	0	--	--	6.64	+2.34	1.79	12	--	0.0	0	-----	---	--	---	--	--	---	---	---	--
Parkersburg CO	615	------	------	81	59	70.1	-1.3	92	26	47	12	2	0	--	--	6.50	+2.50	2.67	13	7	0.0	0	-----	---	33	N	26	9	8	13	6.2	6
Petersburg	1013	979.3	------	82	56	69.0	----	93	26	43	5	4	0	--	--	4.09	-----	1.33	12	4	0.0	0	-----	---	--	---	--	8	12	10	5.8	--
WISCONSIN																																
Green Bay	689	986.1	1011.9	76	52	64.3	-.6	88	8	38	17	0	0	53	67	3.11	-.59	.85	10	8	T	T	11.2	SW	73	SW	12	4	19	7	6.1	7
La Crosse	669	987.5	1011.6	77	56	66.2	-.8	89	25	42	3	0	0	56	71	4.73	+.66	2.81	9	8	T	T	10.9	S	37	NW	29	--	--	--	6.2	7
Madison	857	981.7	1013.4	78	55	66.7	-.5	87	14	42	17	0	0	56	69	6.24	+2.48	3.28	12	8	0.0	0	12.9	SW	49	NE	13	--	--	--	5.8	7
Milwaukee	674	987.8	1012.7	76	56	65.8	+3.7	87	22	45	17	0	0	55	69	5.11	+1.71	3.13	9	7	0.0	0	13.5	SW	47	W	26	11	7	12	5.7	7
WYOMING																																
Casper	5346	836.8	1011.0	76	46	61.0	-2.6	88	11	34	2	0	0	39	51	1.50	+.12	.53	9	9	T	T	11.2	SW	--	---	--	15	9	6	4.5	--
Cheyenne	6139	811.7	1011.7	75	46	60.2	-.2	86	12	32	3	0	2	38	50	1.51	-.10	.40	11	9	1.4	T	11.1	W	52	W	7	17	6	7	3.8	7
Lander	5563	828.3	1012.7	74	45	59.2	-1.3	87	30	32	2	0	1	35	46	2.48	+1.33	1.86	6	8	10.3	7	8.0	---	47	SW	24	16	7	7	4.3	7
Rock Springs	6741	794.1	1013.0	75	42	58.5	-.9	85	30	30	8	0	4	29	40	.17	-.63	.08	3	4	T	0	15.6	W	--	---	--	14	10	6	3.9	--
Sheridan	4021	883.2	1012.9	75	47	60.7	-.8	89	11	33	8	0	0	43	58	1.83	-.21	.78	7	7	T	T	8.9	NW	36	SE	16	10	10	10	5.4	7
PACIFIC AREA																																
Canton Island	12	1009.5	1010.8	88	77	82.3	----	90	2	73	15	4	0	72	76	2.36	-----	.76	13	1	0.0	0	-----	---	--	---	--	6	19	5	5.2	--
Hilo	26	1015.9	1017.2	80	67	73.3	----	84	1	65	6	0	0	66	79	5.03	-----	.81	23	0	0.0	0	4.9	SW	--	---	--	0	9	21	8.2	--
Honolulu CO	12	------	------	--	--	76.2	-.4	---	---	--	--	--	--	--	--	.51	-.41	-----	--	--	---	---	-----	---	26	E	22	--	--	--	---	6
Honolulu	12	1017.3	1017.5	83	71	77.2	----	86	30	67	5	0	0	64	66	.07	-----	.04	4	0	0.0	0	11.9	ENE	--	---	--	5	19	6	5.8	--
Lihue	115	1012.9	1017.8	81	70	75.6	----	83	14	64	30	0	0	67	76	1.22	-----	.44	11	0	0.0	0	10.0	NE	--	---	--	1	18	11	6.9	--
Wake Island	11	1013.9	1014.3	86	76	80.9	----	88	10	71	27	0	0	73	78	3.42	-----	1.69	14	0	0.0	0	9.0	E	--	---	--	8	14	8	5.6	--
PUERTO RICO																																
San Juan	9	1014.2	1016.9	85	75	80.0	----	90	15	72	23	1	0	74	83	4.64	-----	1.50	15	2	0.0	0	10.3	ENE	26	E	19	2	13	15	6.9	3

Data from airport unless otherwise specified. CO indicates data from city office.

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 70°F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb.*	*Mb.*	°F.	°F.	°F	°F	°F.		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p h*		*M p h*			0–3	4–7	8–10	0–10	%
ALASKA																															
Anchorage	134	1010.2	1015.2	62	44	53.1	-0.4	76	29	36	4	3	0	44	72	1.89	+1.19	0.79	13	1	0.0	0	4.1	NW	30	S	16	4	6	20	7.8	37
Annette Island	110	1013.0	1017.2	65	49	56.6	+2.0	83	17	39	1	10	0	48	77	2.79	-2.14	1.02	9	0	0.0	0	7.9	SSE	*--	---	--	6	7	17	7.0	--
Barrow	22	1010.8	1011.2	38	30	33.7	-.5	49	27	21	2	0	25	32	93	.82	+.55	----	12	0	.9	14	----	WSW	38	W	5	1	5	24	8.9	--
Bethel	21	1010.5	1012.2	55	42	48.7	-4.0	70	19	33	1	1	0	40	76	2.48	+1.31	.82	14	0	0.0	0	9.3	S	*40	S	11	2	3	25	8.9	--
Cordova	40	1014.2	1015.9	58	42	50.3	+.2	77	5	32	4	3	1	46	86	9.47	+5.27	2.79	20	1	0.0	0	3.9	SW	*--	---	--	4	6	20	7.7	--
Fairbanks	436	994.6	1011.5	72	46	58.8	+.6	87	18	30	2	18	1	44	62	.86	-.56	.74	8	1	0.0	0	6.9	W	40	SW	11	5	7	18	7.2	44
Galena	120	1006.8	1011.5	62	47	54.7	-3.0	76	20	35	2	5	0	50	66	1.88	+.64	.95	12	0	T	T	8.4	SW	*39	SSW	16	1	8	21	8.1	--
Gambell	25	1008.8	1009.8	40	34	36.8	-1.2	49	26	31	10	0	5	35	97	.68	+.18	.22	13	0	T	6	12.2	SSW	33	SE	4	0	1	29	9.8	--
Juneau	15	1015.6	1016.5	68	45	56.4	+3.4	83	7	33	1	13	0	46	70	1.08	-2.58	.42	8	0	0.0	0	----	W	35	S	20	6	10	14	6.2	51
Kotzebue	10	1010.8	1011.5	49	36	42.6	-.7	59	25	28	1	0	5	38	85	1.12	+.63	.24	12	0	T	0	13.0	SE	*--	---	--	1	2	27	9.1	--
McGrath	334	999.7	1012.5	64	44	54.2	-1.8	78	19	34	1	9	0	43	70	4.36	+2.44	2.39	12	0	0.0	0	6.8	S	*60	S	26	5	4	21	7.7	--
Nome	13	1010.8	1011.5	46	37	41.4	-4.2	61	15	27	1	0	4	39	92	1.93	+.81	.65	10	0	T	0	9.7	S	34	E	11	2	2	26	8.8	19
Northway	1713	950.2	1012.9	70	47	58.5	+3.0	87	17	37	1	17	0	43	62	.54	-1.46	.31	6	1	0.0	0	6.0	NW	*--	---	--	2	4	24	7.9	--
St. Paul Island	22	1011.2	1012.2	45	36	40.4	-.9	50	14	27	13	0	6	38	90	.90	-.51	----	18	0	0.0	0	----	---	*--	----	--	0	1	29	9.7	--
Umiat	337	1001.1	1013.9	55	39	46.9	+4.7	68	19	31	1	0	4	41	83	.20	-.52	.04	8	--	T	4	8.2	E	*--	----	--	1	5	24	8.2	--
Wales	9	------	------	41	34	37.5	-1.3	50	26	26	1	0	19	--	--	1.07	+.45	.40	15	0	T	24	----	----	*--	----	--	0	4	26	9.2	--
Yakutat	28	1016.3	1017.5	57	43	50.7	+.5	75	18	35	4	2	0	46	86	4.20	-.64	1.42	15	0	0.0	0	6.9	WSW	*35	SE	2	1	7	22	8.4	--

* Data entered in column headed "Fastest mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

HEATING DEGREE DAYS

(BASE 65°F.)

Table 3 JUNE 195

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Birmingham (AP)	1	2240	2611
Mobile	0	1106	1566
Mobile (AP)	0	1266	
Montgomery	0	1544	2071
Montgomery (AP)	0	1728	
ARIZONA			
Flagstaff (AP)	216	6737	7241
Phoenix	0	1124	1441
Phoenix (AP)	0	1301	
Tucson (AP)	0	1434	
Winslow (AP)	6	4391	
Yuma (AP)	0	851	1036
ARKANSAS			
Ft. Smith (AP)	1	3109	3226
Little Rock (AP)	0	2711	3009
Texarkana	1	2127	
CALIFORNIA			
Bakersfield (AP)	4	2098	
Blue Canyon	246	5501	
Burbank (AP)	24	1750	
Eureka	312	5026	4758
Fresno (AP)	9	2619	2403
Los Angeles	17	1487	1391
Los Angeles (AP)	64	2063	
Mt. Shasta	200	5901	
Oakland (AP)	158	3298	
Red Bluff (AP)	13	2833	2653
Sacramento	22	2626	2680
Sacramento (AP)	31	2969	
Sandberg	140	4120	
San Diego (AP)	29	1581	1596
San Francisco	238	3434	3137
San Francisco (AP)	183	3653	
San Jose	64	2585	
Santa Maria (AP)	187	3210	
COLORADO			
Denver (AP)	62	5687	5839
Grand Junction (AP)	32	5651	
Pueblo (AP)	34	5078	5558
CONNECTICUT			
Bridgeport (AP)	45	5598	
Hartford (AP)	48	6006	6113
New Haven (AP)	67	5765	5880
DELAWARE			
Wilmington (AP)	13	4806	
DIST. OF COLUMBIA			
Washington	0	3804	4561
Washington (AP)	0	3824	
FLORIDA			
Apalachicola	0	841	1252
Daytona Beach (AP)	0	612	
Fort Myers	0	201	
Jacksonville	0	736	1185
Jacksonville (AP)	0	849	
Key West	0	7	59
Key West (AP)	0	16	
Melbourne (AP)	0	312	
Miami	0	101	185
Miami Beach*	0	34	
Int. Airport, Hialeah	0	83	
Orlando (AP)	0	372	
Pensacola	0	983	1281
Tallahassee (AP)	0	1001	
Tampa (AP)	0	330	571
West Palm Beach (AP)	0	90	
GEORGIA			
Atlanta	0	2545	2985
Atlanta (AP)	0	2455	
Athens (AP)	0	2714	
Augusta (AP)	0	1853	2306
Columbus	0	1914	
Macon (AP)	0	1788	
Savannah (AP)	0	1333	1635
Valdosta (AP)	0	1163	
IDAHO			
Boise (AP)	114	6123	5678
Lewiston (AP)	103	6154	
Pocatello (AP)	153	7033	6763
ILLINOIS			
Cairo	0	3497	3957
Chicago	44	5924	6282
Chicago (AP)	41	6289	
Chicago University	54	6128	
Moline (AP)	34	6364	
Peoria (AP)	36	5948	6004
Springfield	9	5010	5446
Springfield (AP)	21	5475	
INDIANA			
Evansville (AP)	5	4247	4410
Ft. Wayne (AP)	55	6113	6232
Indianapolis	19	4949	5458
Indianapolis (AP)	29	5306	
South Bend (AP)	71	6437	
Terre Haute (AP)	23	5112	
IOWA			
Burlington (AP)	40	6129	
Charles City	53	7698	7624
Davenport	28	6153	6252
Des Moines	33	6489	6375
IOWA (Cont'd.)			
Des Moines (AP)	36	6656	
Dubuque	35	6831	6820
Keokuk	25	5725	5663
Sioux City (AP)	47	7330	6905
KANSAS			
Concordia	16	5358	5425
Dodge City (AP)	12	4865	5069
Goodland (AP)	34	5968	
Topeka	12	4887	5075
Topeka (AP)	16	5114	
Wichita (AP)	12	4521	4644
KENTUCKY			
Lexington (AP)	5	4337	4792
Louisville	4	3997	4417
Louisville (AP)	3	4023	
Pikeville	0	2992	
LOUISIANA			
Baton Rouge (AP)	0	1162	1508
Lake Charles (AP)	0	1030	
New Orleans	0	775	1203
New Orleans (AP)	0	838	
Int. Airport, Moisant	0	921	
Shreveport (AP)	0	1807	2132
MAINE			
Caribou (AP)	220	9692	
Eastport	272	7814	8445
Greenville	175	9498	9439
Portland	111	7508	7377
MARYLAND			
Baltimore	0	3921	4487
Baltimore (AP)	1	4124	
Bethesda*	8	4348	
District Heights*	2	4089	
Frederick	11	4234	
Riverdale*	8	4265	
Takoma Park*	7	4174	4842
MASSACHUSETTS			
Boston (AP)	12	5559	5936
Nantucket (AP)	113	5757	5875
Pittsfield (AP)	136	7497	
Milton	52	6375	
MICHIGAN			
Alpena	132	8038	8278
Detroit (AP)	46	6333	6560
Escanaba	175	8775	8823
Grand Rapids	59	6420	6702
Grand Rapids (AP)	81	6866	
Iron Mountain*	126	9057	
Lansing (AP)	70	6937	
Marquette	187	8808	8745
Muskegon (AP)	122	7044	
Sault Ste.Marie (AP)	280	9601	9307
Ypsilanti (AP)	49	6414	
MINNESOTA			
Duluth	232	10054	9723
Duluth (AP)	212	10603	
International Falls	221	11410	
Minneapolis (AP)	62	8424	
St. Cloud (AP)	95	9511	8881
St. Paul (AP)	48	8405	
MISSISSIPPI			
Jackson (AP)	0	1729	2162
Meridian (AP)	0	1877	2330
Vicksburg	0	1666	2069
MISSOURI			
Columbia	16	4704	5070
Columbia (AP)	15	4983	
Kansas City (AP)	9	4747	4962
St. Joseph (AP)	12	5383	
St. Louis	4	4262	4596
St. Louis (AP)	5	4449	
Springfield (AP)	19	4459	4569
MONTANA			
Billings (AP)	159	7853	7213
Butte (AP)	379	9883	
Glasgow	151	10033	
Great Falls (AP)	216	8361	
Havre	164	9450	8416
Helena	250	8804	7930
Kalispell	228	8791	8032
Missoula (AP)	231	8283	7604
NEBRASKA			
Grand Island (AP)	40	6562	
Lincoln	18	6031	5980
Lincoln (AP)	26	6314	
Norfolk (AP)	48	7324	
No. Platte (AP)	46	6687	
Omaha (AP)	23	6314	6095
Valentine	79	7655	7197
NEVADA			
Ely (AP)	255	7647	
Las Vegas	0	2445	2619
Reno (AP)	170	6019	5621
Tonopah	161	5516	5812
Winnemucca (AP)	155	6472	6357
NEW HAMPSHIRE			
Concord (AP)	76	7403	7400
Mt. Washington Obs.	626	13830	
NEW JERSEY			
Atlantic City	23	4470	5015
Newark (AP)	18	4959	5500
Trenton	20	4855	5256
NEW MEXICO			
Albuquerque (AP)	0	3852	4517
Clayton (AP)	31	4688	
Roswell (AP)	1	3124	3578
NEW YORK			
Albany	71	6917	
Bear Mountain	84	6784	
Binghamton	90	6383	6818
Binghamton (AP)	108	6763	
Buffalo (AP)	77	6528	6925
Canton	90	7892	8305
New York	26	4669	5280
La Guardia Field	20	5182	
Oswego	86	6704	
Rochester (AP)	72	6682	6772
Schenectady	69	7031	
Syracuse (AP)	72	6639	6899
NORTH CAROLINA			
Asheville	12	3587	4236
Asheville (AP)	13	3842	
Charlotte	0	2699	3224
Charlotte (AP)	0	2885	
Greensboro (AP)	0	3472	
Hatteras	0	1891	2554
Raleigh	0	2713	3275
Raleigh (AP)	0	3041	
Wilmington	0	1924	2420
Winston-Salem (AP)	0	3362	
NORTH DAKOTA			
Bismarck (AP)	104	10224	8937
Devils Lake	154	11135	10104
Fargo (AP)	74	10212	
Grand Forks			9871
Pembina (AP)	185	1842	
Williston	151	10224	9301
OHIO			
Akron (AP)	67	6211	
Cincinnati	5	4155	4990
Cincinnati (AP)	14	4791	
Cleveland	37	5556	6144
Cleveland (AP)	41	5796	
Columbus	19	4981	5506
Columbus (AP)	33	5234	
Dayton (AP)	37	5435	5412
Sandusky	24	5514	6095
Toledo (AP)	40	6163	6269
Youngstown (AP)	66	6171	
OKLAHOMA			
Oklahoma City	2	3321	3670
Oklahoma City (AP)	2	3446	
Tulsa (AP)	3	3527	
OREGON			
Baker	237	7437	7197
Baker (AP)	249	7884	
Burns	235	7501	
Eugene (AP)	123	5206	
Meacham	344	8292	
Medford (AP)	97	4968	4650
Pendleton (AP)	108	6021	
Portland	102	4700	4353
Portland (AP)	115	5302	
Roseburg	110	4440	4332
Salem (AP)	113	5172	
Troutdale	123	5340	
PENNSYLVANIA			
Allentown (AP)	29	5644	
Curwensville	124	7210	
Erie	44	5828	6363
Harrisburg (AP)	8	5125	5412
Park Place	108	6831	
Philadelphia	12	4360	4739
Philadelphia (AP)	10	4553	
Pittsburgh	16	4836	5349
Pittsburgh (AP)	29	5243	5658
Reading	14	4859	5232
Scranton	58	5859	6218
Williamsport (AP)	41	5920	6055
RHODE ISLAND			
Block Island	90	5398	5897
Providence	26	5473	5984
Providence (AP)	52	5886	
SOUTH CAROLINA			
Charleston	0	1394	1866
Charleston (AP)	0	1652	
Columbia	0	2057	2488
Columbia (AP)	0	2167	
Greenville (AP)	0	2859	3059
Spartanburg	0	2840	
SOUTH DAKOTA			
Huron (AP)	61	8641	7940
Pierre (AP)	60	8424	7283
Rapid City (AP)	107	7947	7197
Sioux Falls (AP)	80	8377	
TENNESSEE			
Bristol (AP)	10	3726	
Chattanooga	0	2464	
Chattanooga (AP)	0	2872	3238
Knoxville (AP)	1	3129	3658
Memphis (AP)	0	2838	3090
Nashville (AP)	1	3311	3613
TEXAS			
Abilene (AP)	1	2208	2573
Amarillo (AP)	13	3732	4196
Austin (AP)	0	1398	1679
Big Spring (AP)	2	2208	
Brownsville (AP)	0	271	628
Corpus Christi (AP)	0	502	965
Dallas (AP)	1	2079	2367
Del Rio	0	929	1501
El Paso (AP)	0	2143	2532
Ft. Worth (AP)	0	2113	2355
Galveston	0	655	1174
Galveston (AP)	0	646	
Houston	0	852	
Houston (AP)	0	905	1315
Laredo	0	494	
Lubbock	7	3191	
Palestine	0	1630	2068
Port Arthur	0	847	1352
Port Arthur (AP)	0	1061	
San Angelo (AP)	2	1930	
San Antonio (AP)	0	1153	1435
Wichita Falls (AP)	1	2622	
Waco (AP)	1	1759	
UTAH			
Milford	90	6438	
Salt Lake City			5624
Salt Lake City (AP)			6079
VERMONT			
Burlington (AP)	61	7565	8051
VIRGINIA			
Alexandria E.H.S.*	0	3837	
Cape Henry	0	2895	3538
Falls Church*	4	4087	
Lynchburg (AP)	0	3840	4068
Norfolk	0	2736	3364
Norfolk (AP)	0	3011	
Potomac Yards	0	3505	
Richmond	0	3313	3922
Richmond (AP)	2	3569	
Roanoke (AP)	6	3869	
Urbanna	5	3461	
WASHINGTON			
Ellensburg (AP)	157	7630	
North Head	252	5647	5367
Olympia (AP)	157	6085	
Port Angeles	294	6439	
Seattle	120	5035	4815
Seattle (AP)	106	5275	
Spokane (AP)	160	7538	6318
Stampede Pass	486	10236	
Stevenson	131	5924	
Tacoma	152	5426	5039
Tatoosh Island	363	5452	5837
Walla Walla	81	5502	4910
Yakima (AP)			5585
WEST VIRGINIA			
Elkins (AP)	71	5466	5800
Huntington (AP)	2	3642	
Parkersburg	16	4446	4928
WISCONSIN			
Green Bay	97	8432	7931
La Crosse	36	7425	7421
La Crosse (AP)	72	8140	
Madison	53	7345	7405
Madison (AP)	48	7486	
Milwaukee	63	7103	7079
Milwaukee (AP)	64	7164	
WYOMING			
Casper (AP)	146	7780	
Cheyenne (AP)	158	7322	7536
Lander (AP)	178	7899	8243
Rock Springs	180	7869	
Rock Springs (AP)	190	8454	
Sheridan (AP)	149	8147	
ALASKA			
Anchorage (AP)	353	11423	
Annette Island (AP)	258	7803	
Barrow	930	18952	
Bethel (AP)	485	12602	
Cordova (AP)	435	10380	
Fairbanks (AP)	208	13850	
Galena (AP)	311	14310	
Gambell			
Juneau (AP)	262	9646	
Kotzebue (AP)	667	15087	
McGrath (AP)	318	4040	
Nome (AP)			
Northway (AP)	196	15446	
St. Paul Island (AP)	733	10701	
Yakutat (AP)	435	9957	

Data from city office unless otherwise specified. AP indicates data from airport. * Data from cooperative stations.

The "base" for computing heating degree days is a mean daily outdoor temperature of 65°. Heating degree days are obtained by subtracting the mean daily temperature from this base, i.e., a mean daily temperature of 53° makes 12 heating degree days. If the mean daily outdoor temperature is equal to or greater than 65°, there are no heating degree days. Fuel requirements are related to heating degree days; therefore, a comparison of the accumulated current heating degree days with the long period averages should show, in general, whether fuel requirements have been above or below normal.

MONTHLY AND SEASONAL HEATING DEGREE DAYS

Table 3A

1949 - 1950

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Long-Terms Mean July-June
ALABAMA														
nniston (CO)	0	0	21	41	480	578	245							
irmingham (AP)	0	0	25	39	430	548	218	354	414	211	0	1	2240	2611
obile (CO)	0	0	2	13	223	258	68	176	255	111	0	0	1106	1566
obile (AP)	0	0	6	16	255	291	84	198	293	123	0	0	1266	-
ontgomery (CO)	0	0	5	13	286	418	121	237	323	141	0	0	1544	2071
ontgomery (AP)	0	0	7	16	338	452	127	265	353	170	0	0	1728	-
ARIZONA														
lagstaff (AP)	12	68	133	615	604	1177	1180	839	839	553	501	216	6737	7241
ayson	0	0	5	321	295	809	814	517	517					
hoenix (CO)	0	0	0	49	30	386	418	137	90	9	5	0	1124	1441
hoenix (AP)	0	0	0	59	53	431	469	167	107	11	4	0	1301	-
rescott									537	242	174	17	4124	
ucson (AP)	0	0	0	78	56	442	445	216	154	22	21	0	1434	
insłow (AP)	0	0	1	350	548	1003	916	613	568	243	143	6	4391	
uma (AP)	0	0	0	25	7	328	378	69	40	2	2	0	851	1036
ARKANSAS														
t. Smith (AP)	0	0	35	163	384	658	637	505	507	207	12	1	3109	3226
ittle Rock (AP)	0	0	27	115	338	594	494	489	468	168	18	0	2711	3009
exarkana (CO)	0	0	16	102	258	471	389	373	365	149	3	1	2127	
CALIFORNIA														
akersfield (AP)	0	0	0	93	151	576	608	276	266	74	50	4	2098	
ishop (AP)									510	186	131	26	3799	
lue Canyon	21	75	109	372	328	866	1159	665	815	498	347	246	5501	
urbank (AP)	0	1	0	86	77	365	506	265	207	103	116	24	1750	
eaumont (CO)									392	203	205	48	2730	
ureka (CO)	315	193	254	439	317	602	662	475	520	468	469	312	5026	4758
resno (AP)	0	0	1	142	236	645	686	370	354	104	72	9	2619	2403
os Angeles (CO)	0	0	0	54	66	294	443	228	198	89	98	17	1487	1391
os Angeles (AP)	1	2	6	101	122	364	503	312	283	150	155	64	2063	
t. Shasta (CO)	25	57	137	485	483	966	1166	745	784	543	310	200	5901	
akland (AP)	66	56	38	221	246	569	642	411	389	266	236	158	3298	
ed Bluff (AP)	0	0	2	112	209	639	821	422	398	137	80	13	2833	2653
acramento (CO)	0	1	3	132	238	628	660	370	350	127	95	22	2626	2680
acramento (AP)	0	1	6	156	300	683	706	414	400	156	116	31	2969	
andberg (CO)	0	35	44	278	211	763	935	509	596	340	269	140	4120	
an Diego (AP)	0	0	1	60	80	313	395	258	207	127	111	29	1581	1596
an Francisco (CO)	231	175	106	218	161	448	553	360	361	267	316	238	3434	3137
an Francisco (AP)	184	140	97	246	226	534	615	420	413	308	287	183	3653	
an Jose	18	21	17	172	179	502	571	370	331	190	150	64	2585	
anta Maria (AP)	134	118	99	272	162	445	582	349	335	247	280	187	3210	
anta Catalina (CO)									312	220	302	174	2431	
COLORADO														
lamosa (AP)									1049	672	508	164	8210	
olorado Sp. (AP)									884	577	387	87	5996	
enver (CO)	0	3	76	451	425	923	1039	681	787					
enver (AP)	0	5	94	483	493	1010	1098	732	826	515	369	62	5687	5839
rand Junction (AP)	0	0	31	433	620	1101	1291	854	728	365	196	32	5651	
ueblo (AP)	0	3	43	418	530	992	985	704	734	418	217	34	5078	5558
CONNECTICUT														
ridgeport (AP)	0	3	94	199	647	901	866	995	949	594	305	45	5598	
artford (AP)	0	5	132	257	728	1020	939	1068	998	575	236	48	6006	6113
ew Haven (AP)	0	2	108	241	672	933	891	994	944	604	309	67	5765	5880
DELAWARE														
ilmington (AP)	0	3	87	184	613	854	682	872	841	494	163	13	4806	
DISTRICT OF COLUMBIA														
ashington (CO)	0	0	55	116	502	718	513	732	717	377	74	0	3804	4561
ashington (AP)	0	0	54	121	502	716	524	730	719	389	78	0	3824	
FLORIDA														
palachicola (CO)	0	0	0	0	181	209	44	120	187	100	0	0	841	1252
aytona Beach (AP)	0	0	0	0	155	100	5	110	124	118	0	0	612	
ort Myers (CO)	0	0	0	0	70	20	0	40	38	33	0	0	201	
acksonville (CO)	0	0	0	0	168	184	30	114	146	94	0	0	736	1185
acksonville (AP)	0	0	0	0	202	203	36	133	161	114	0	0	849	
ey West (CO)	0	0	0	0	4	0	0	0	0	3	0	0	7	59
ey West (AP)	0	0	0	0	5	0	0	3	3	5	0	0	16	
elbourne (AP)	0	0	0	0	93	31	0	56	68	64	0	0	312	
iami (CO)	0	0	0	0	31	2	0	17	25	26	0	0	101	185
iami Beach *	0	0	0	0	14	0	0	6	4	10	0	0	34	
iami Int. Airport														
Hialeah	0	0	0	0	32	0	0	15	12	24	0	0	83	
rlando (AP)	0	0	0	0	113	57	4	66	68	64	0	0	372	
ensacola (CO)	0	0	0	7	200	227	55	152	241	101	0	0	983	1281
allahassee (AP)	0	0	0	1	245	211	42	169	223	110	0	0	1001	
ampa (AP)	0	0	0	0	96	53	1	64	62	54	0	0	330	571
est Palm Beach (AP)	0	0	0	0	34	1	0	14	22	19	0	0	90	
GEORGIA														
lbany (CO)									278	127	0	0	1350	
tlanta (CO)	0	5	32	62	408	592	314	402	493	229	8	0	2545	2985
tlanta (AP)	0	2	23	41	415	600	296	394	460	217	7	0	2455	
thens (AP)	0	4	33	53	470	631	365	426	502	225	5	0	2714	
ugusta (AP)	0	0	4	10	320	446	216	315	387	152	3	0	1853	2306
olumbus (CO)	0	0	7	8	393	468	162	304	379	192	1	0	1914	
acon (AP)	0	0	5	10	348	466	164	281	359	153	2	0	1788	2338
ome (CO)									511	266	2	0	2895	
avannah (AP)	0	0	1	0	260	326	108	222	278	136	0	0	1333	1635
aldosta (AP)	0	0	0	0	273	253	71	194	245	127	0	0	1163	

CO indicates data from city office; AP from airport; * from cooperative stations.

MONTHLY AND SEASONAL HEATING DEGREE DAYS

1949 - 1950

Table 3A-Continued

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Long-Term Mean July-June
IDAHO														
Boise (AP)	4	1	90	576	613	1051	1222	827	775	517	333	114	6123	5678
Lewiston (AP)	2	1	94	566	592	942	1501	843	722	508	280	103	6154	
Pocatello (AP)	4	1	130	697	677	1180	1314	968	885	626	398	153	7033	6763
ILLINOIS														
Cairo (CO)	0	0	53	135	466	663	628	629	614	277	32	0	3497	3957
Chicago (CO)	0	0	126	224	670	962	1020	1012	965	670	231	44	5924	6282
Chicago (AP)	0	2	160	276	745	1032	1095	1078	987	699	174	41	6289	
Chicago University	0	0	131	244	699	978	1061	1040	982	702	237	54	6128	
Moline (AP)	0	3	204	289	695	1055	1204	1126	989	636	129	34	6364	
Peoria (AP)	0	0	168	266	682	984	1105	1061	936	613	97	36	5948	6004
Springfield (CO)	0	0	96	216	572	864	965	907	826	505	50	9	5010	5446
Springfield (AP)	0	2	155	268	630	918	1004	963	876	563	75	21	5475	
Joliet (AP)										701	179	51	6520	
INDIANA														
Evansville (AP)	0	0	112	172	570	764	698	737	706	425	58	5	4247	4410
Ft. Wayne (AP)	0	11	202	279	742	983	975	1052	1003	669	142	55	6113	6232
Indianapolis (CO)	0	1	117	192	636	840	818	895	835	526	70	19	4949	5458
Indianapolis (AP)	0	1	155	221	682	903	852	927	869	575	92	29	5306	
South Bend (AP)	1	7	199	313	769	1002	1040	1103	1035	712	185	71	6437	
Terre Haute (AP)	0	0	138	220	662	877	845	896	835	551	65	23	5112	
IOWA														
Burlington (AP)	0	2	182	284	659	1043	1188	1062	948	606	115	40	6129	
Charles City (CO)	0	8	222	352	792	1286	1586	1263	1167	753	216	53	7698	7624
Davenport (CO)	0	2	152	256	670	1033	1200	1092	980	626	114	28	6153	6252
Des Moines (CO)	0	3	136	276	643	1118	1379	1145	1001	616	139	33	6489	6375
Des Moines (AP)	0	4	164	281	672	1135	1401	1168	1010	630	155	36	6656	
Dubuque (CO)	0	1	190	304	729	1150	1341	1159	1069	694	159	35	6831	6820
Keokuk (CO)	0	0	132	258	607	1003	1136	987	939	557	81	25	5725	5663
Sioux City (AP)	1	6	180	358	679	1221	1628	1222	1095	662	231	47	7330	6905
KANSAS														
Concordia (CO)	0	0	96	242	485	1024	1227	854	824	484	106	16	5358	5425
Dodge City (AP)	0	0	69	279	442	956	1089	714	744	423	137	12	4865	5069
Goodland (AP)	0	7	114	444	582	1022	1212	796	887	564	306	34	5968	
Topeka (CO)	0	0	79	208	478	929	1133	801	763	427	57	12	4887	5075
Topeka (AP)	0	0	105	251	527	963	1125	834	777	453	63	16	5114	
Wichita (AP)	0	0	59	218	426	861	1065	710	704	392	74	12	4521	4644
KENTUCKY														
Lexington (AP)	0	0	98	171	625	775	654	751	743	441	74	5	4337	4792
Louisville (CO)	0	0	78	141	553	726	641	720	691	396	47	4	3997	4417
Louisville (AP)	0	0	93	152	558	729	630	720	691	388	59	3	4023	
Pikeville (CO)	0	0	58	90	195	670	447	585	614	310	23	0	2992	
LOUISIANA														
Baton Rouge (AP)	0	0	4	18	236	279	101	175	250	99	0	0	1162	1508
Lake Charles (AP)	0	0	2	21	184	279	130	148	202	64	0	0	1030	
New Orleans (CO)	0	0	0	10	135	223	48	124	180	55	0	0	775	1203
New Orleans (AP)	0	0	1	8	154	228	46	134	207	60	0	0	838	
New Orleans Int'l.Moisant (AP)	0	0	0	14	202	225	47	152	207	74	0	0	921	
Shreveport (AP)	0	0	9	81	241	428	311	298	311	128	0	0	1807	2132
MAINE														
Caribou (AP)	58	101	352	569	1192	1405	1564	1590	1395	860	386	220	9692	
Eastport (CO)	65	78	238	426	835	1038	1182	1262	1165	768	485	272	7814	8445
Greenville (CO)	60	122	358	579	1100	1333	1509	1551	1409	882	420	175	9498	9439
Portland (AP)	11	27	239	419	862	1081	1176	1301	1192	718	371	111	7508	7377
MARYLAND														
Baltimore (CO)	0	0	47	98	488	728	562	765	735	396	102	0	3921	4487
Baltimore (AP)	0	0	54	115	514	767	598	778	767	423	107	1	4124	
Bethesda *	0	3	95	164	586	807	585	816	769	418	97	8	4348	
District Heights *	0	0	74	148	546	758	555	770	734	406	96	2	4089	
Frederick (CO)	1	1	66	164	556	839	637	809	599	456	95	11	4234	
Riverdale *	0	2	85	168	584	800	583	766	741	422	106	8	4265	
Takoma Park *	0	1	90	159	561	779	569	777	734	400	97	7	4174	4842
MASSACHUSETTS														
Boston (AP)	0	1	105	230	644	872	886	1029	961	539	280	12	5559	5936
Nantucket (AP)	5	6	102	287	599	825	798	931	968	680	443	113	5757	5875
Pittsfield (AP)	1	36	273	397	882	1139	1078	1245	1213	745	352	136	7497	
Milton (Blue Hill Obs.)	0	5	157	295	733	967	968	1139	1068	639	352	52	6375	
MICHIGAN														
Alpena (CO)	19	32	260	417	910	1142	1256	1216	1287	923	444	132	8038	8278
Detroit (AP)	3	13	182	270	782	993	997	1070	1070	696	211	46	6333	6560
Escanaba (CO)	16	40	305	464	907	1244	1525	1318	1309	981	491	175	8775	8823
Grand Rapids (CO)	1	6	184	266	776	994	1077	1078	1073	728	178	59	6420	6702
Grand Rapids (AP)	3	12	224	330	842	1038	1099	1146	1111	756	224	81	6866	
Iron Mountain *	29	60	293	461	984	1391	1626	1377	1315	979	416	126	9057	
Lansing (AP)	4	23	247	335	871	1052	1080	1146	1131	749	229	70	6937	
Marquette (CO)	38	58	299	432	951	1268	1517	1271	1310	972	505	187	8808	8745
Muskegon (AP)	3	24	225	347	806	1038	1121	1137	1128	797	296	122	7044	
Sault Ste. Marie (AP)	69	71	355	507	1048	1329	1530	1424	1427	1054	507	280	9601	9307
Traverse City (AP)	99	37	239	388	887	1138	1235	1230	1239	904	391			
Ypsilanti (AP)	3	9	203	268	802	1010	1023	1090	1066	702	189	49	6414	

CO indicates data from city office; AP from airport; * from cooperative stations.

MONTHLY AND SEASONAL HEATING DEGREE DAYS

1949 - 1950

Table 3A-Continued

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Long-Terms Mean July-June
MINNESOTA														
Duluth (CO)	50	44	315	558	972	1566	1902	1389	1427	1009	590	232	10054	9723
Duluth (AP)	54	67	359	614	1033	1632	1981	1468	1519	1081	583	212	10603	
International Falls (CO)	59	66	423	713	1087	1798	2268	1616	1561	1060	538	221	11410	
Minneapolis (CO)	1	14	211	376	836									
Minneapolis (AP)	0	14	211	376	836	1384	1800	1356	1264	834	287	62	8424	7966
Rochester (CO)									1278	815	269	69	8430	
St. Cloud (AP)	12	34	284	502	921	1515	1994	1480	1339	932	403	95	9511	8881
St. Paul (AP)	0	13	208	383	840	1371	1794	1365	1269	831	283	48	8405	
MISSISSIPPI														
Jackson (AP)	0	0	10	36	298	410	215	271	334	155	0	0	1729	2162
Meridian (AP)	0	0	12	31	370	462	177	287	365	173	0	0	1877	2330
Vicksburg (CO)	0	0	10	46	248	376	243	282	328	133	0	0	1666	2069
MISSOURI														
Columbia (CO)	0	0	112	227	512	839	931	800	762	454	51	16	4704	5070
Columbia (AP)	0	1	124	247	550	885	987	834	797	482	61	15	4983	
Kansas City (AP)	0	0	79	197	462	866	1075	821	767	433	38	9	4747	4962
St. Joseph (AP)	0	0	106	233	541	1000	1204	908	828	490	61	12	5383	
St. Louis (CO)	0	0	70	175	480	741	829	771	728	423	41	4	4262	4596
St. Louis (AP)	0	0	100	199	498	782	841	779	751	440	54	5	4449	
Springfield (AP)	0	2	106	232	530	806	855	719	731	393	66	19	4459	4569
MONTANA														
Billings (AP)	10	2	203	717	525	1315	1857	865	1072	665	463	159	7853	7213
Butte (AP)	134	130	409	914	799	1446	1731	1167	1227	855	692	379	9883	
Glasgow (CO)	15	18	240	667	743	1752	2460	1433	1391	772	391	151	10033	
Great Falls (AP)	20	12	214	731	524	1398	2135	826	1126	724	435	216	8361	
Havre (CO)	14	17	211	688	662	1678	2379	1298	1256	712	371	164	9450	8416
Helena (AP)	38	27	301	791	754	1395	1998	952	1066	726	506	250	8804	7930
Kalispell (CO)	95	68	300	775	804	1264	1894	1095	1066	715	487	228	8791	8032
Miles City (AP)	2	7	187	642	648	1515	2144	1214	1218					7591
Missoula (AP)	59	41	225	755	811	1250	1679	1086	962	684	500	231	8283	7604
NEBRASKA														
Grand Island (AP)	0	5	134	353	592	1116	1457	1034	972	624	235	40	6562	
Lincoln (CO)	0	1	122	268	546	1076	1388	1005	912	542	153	18	6031	5980
Lincoln (AP)	0	3	151	298	580	1114	1420	1049	936	565	172	26	6314	
Norfolk (AP)	0	8	179	381	643	1203	1619	1199	1094	679	271	48	7324	
No. Platte (CO)	0	2	135	417	550	1103	1477	863						
No. Platte (AP)	0	5	156	452	599	1124	1429	935	996	654	291	46	6687	6384
Omaha (AP)	0	3	137	280	591	1088	1440	1101	950	559	142	23	6314	6095
Valentine (CO)	1	12	190	522	624	1235	1622	1046	1170	788	366	79	7655	7197
NEVADA														
Ely (AP)	16	73	183	679	705	1291	1382	889	960	672	542	255	7647	
Reno (AP)	12	47	139	534	619	1037	1102	724	794	503	338	170	6019	5621
Tonopah (AP)	0	3	72	489	427	1063	1199	671	728	425	278	161	5516	5812
Winnemucca (AP)	0	0	126	631	638	1142	1189	796	837	572	386	155	6472	6357
Las Vegas (CO)	0	0	0	151	183	672	730	368	255	51	35	0	2445	2619
Elko (AP)									885	643	500	217	7491	
NEW HAMPSHIRE														
Concord (CO)	8	26	234	427	898	1147	1156	1292	1157	693	289	76	7403	7400
Mt. Washington (CO)	404	485	789	923	1471	1648	1629	1754	1823	1352	926	626	13830	
NEW JERSEY														
Atlantic City (CO)	0	0	57	117	502	756	634	774	816	525	266	23	4470	5015
Newark (AP)	0	1	72	154	622	830	758	931	885	490	198	18	4959	5500
Trenton (CO)	0	2	84	167	622	824	697	905	856	502	176	20	4855	5256
NEW MEXICO														
Albuquerque (AP)	0	0	6	290	426	958	845	560	522	195	50	0	3852	4517
Clayton (AP)	1	2	41	331	394	971	914	655	759	412	177	31	4688	
Roswell (AP)	0	0	7	262	374	807	607	461	412	173	20	1	3124	3578
Raton (CO)									819	482	304	63	5835	
NEW YORK														
Albany (CO)	0	5	160											
Albany (AP)	0	15	208	343	837	1098	1046	1241	1166	654	238	71	6917	6648
Bear Mountain (CO)	3	13	186	305	821	1076	1005	1193	1122	680	296	84	6784	
Binghamton (CO)	0	14	200	315	778	1021	886	1092	1097	663	227	90	6383	6818
Binghamton (AP)	0	22	245	349	828	1070	928	1128	1138	691	256	108	6763	
Buffalo (AP)	0	8	206	273	811	983	926	1117	1133	744	250	77	6528	6925
Canton (CO)	8	31	237	382	1011	1185	1218	1383	1299	747	301	90	7892	8305
New York (CO)	0	0	53	123	552	767	697	893	860	494	204	26	4669	5280
New York International AP	0	0	59	156	590	833	746	916	885	530	236			
La Guardia Field	0	0	50	123	555	1228	730	904	870	501	201	20	5182	
Oswego (CO)	0	10	172	281	810	1020	1005	1140	1153	726	301	86	6704	
Rochester (AP)	0	11	209	315	822	1026	978	1132	1148	716	253	72	6682	6772
Schenectady (CO)	0	8	213	381	851	1106	1076	1216	1176	674	261	69	7031	
Syracuse (AP)	0	14	180	297	809	1038	980	1187	1166	668	228	72	6639	6899
NORTH CAROLINA														
Asheville (CO)	0	12	100	141	613	677	407	580	652	368	25	12	3587	4236
Asheville (AP)	0	14	131	158	652	735	451	590	668	398	32	13	3842	
Charlotte (CO)	0	3	28	58	431	613	356	462	509	230	9	0	2699	3224
Charlotte (AP)	0	4	33	64	473	641	387	494	531	246	12	0	2885	
Greensboro (AP)	0	2	52	114	541	725	469	628	612	300	29	0	3472	
Hatteras (CO)	0	0	1	9	277	401	214	347	382	238	22	0	1891	2554
Raleigh (CO)	0	0	26	57	404	580	359	515	506	238	28	0	2713	3275
Raleigh (AP)	0	0	37	85	463	643	407	556	541	272	37	0	3041	
Wilmington (CO)	0	0	2	13	315	438	222	339	389	187	19	0	1924	2420
Winston Salem (AP)	0	7	56	102	508	693	469	613	604	283	27	0	3362	

CO indicates data from city office; AP from airport; * from cooperative stations.

MONTHLY AND SEASONAL HEATING DEGREE DAYS

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Table 3A-Continued

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Long-Terms Mean July-June
NORTH DAKOTA														
Bismarck (AP)	8	20	272	646	776	1711	2334	1599	1387	932	435	104	10224	8937
Devils Lake (CO)	37	39	301	701	931	1855	2436	1696	1469	1007	509	154	11135	10104
Fargo (AP)	12	30	262	592	925	1691	2234	1652	1365	938	437	74	10212	
Grand Forks (CO)	24	39	290	636	950	1786	2367	1734	1480	1037	484			9871
Pembina (AP)	47	46	347	758	1032	1871	2458	1839	1597	1118	544	185	11842	
Williston (CO)	32	22	277	682	728	1750	2398	1450	1400	891	443	151	10224	9301
OHIO														
Akron (AP)	0	13	229	276	765	1010	889	1013	1032	712	205	67	6211	
Cincinnati (CO)	0	0	86	146	536	743	658	759	732	434	56	5	4155	4990
Cincinnati (AP)	0	0	141	203	647	823	728	828	812	508	87	14	4791	
Cleveland (CO)	0	4	126	199	663	883	846	963	976	656	203	37	5556	6144
Cleveland (AP)	0	4	180	229	710	956	868	996	983	655	174	41	5796	
Columbus (CO)	0	1	130	187	636	867	761	882	849	555	94	19	4981	5506
Columbus (AP)	0	3	161	223	668	915	773	893	883	573	109	33	5234	
Dayton (AP)	0	2	182	236	691	926	820	932	895	594	120	37	5435	5412
Sandusky (CO)	0	0	120	199	675	919	858	966	953	626	174	24	5514	6095
Toledo (AP)	0	9	203	263	755	987	959	1047	1031	675	194	40	6163	6269
Youngstown (AP)	0	13	199	266	745	994	892	1034	1057	694	211	66	6171	
OKLAHOMA														
Oklahoma City (CO)	0	0	38	171	305	705	831	530	489	208	42	2	3321	3670
Oklahoma City (AP)	0	0	41	174	324	726	849	546	518	227	39	2	3446	
Tulsa (AP)	0	0	58	179	356	725	811	572	545	239	39	3	3527	
OREGON														
Baker (CO)	69	40	164	686	660	1122	1453	940	902	680	484	237	7437	7197
Baker (AP)	65	53	243	787	776	1167	1492	953	930	691	478	249	7884	
Burns (CO)	37	39	187	708	661	1185	1399	1008	954	654	434	235	7501	
Eugene (AP)	54	32	119	517	491	772	1038	662	614	480	304	123	5206	
Meacham (CO)	150	131	240	758	619	1132	1542	975	1000	804	597	344	8292	
Medford (AP)	1	7	43	465	577	865	986	636	625	436	230	97	4968	4650
Pendleton (AP)	5	9	80	513	585	873	1496	894	703	481	274	108	6021	
Portland (CO)	32	14	60	432	369	694	1097	640	576	425	259	102	4700	4353
Portland (AP)	48	30	99	511	452	731	1172	727	611	487	319	115	5302	
Roseburg (CO)	24	17	62	443	397	724	901	539	552	409	262	110	4440	4332
Salem (AP)	35	27	94	503	477	771	1089	657	618	492	296	113	5172	
Sexton Summit (CO)									901	672	471	298	6831	
Troutdale (CO)	49	30	103	501	401	751	1210	748	628	479	317	123	5340	
PENNSYLVANIA														
Allentown (AP)	0	5	129	239	732	952	867	996	939	557	199	29	5644	
Curwensville (CO)	4	34	326	363	870	1136	966	1143	1194	774	276	124	7210	
Erie (CO)	0	5	147	219	705	900	830	1003	1041	700	234	44	5828	6363
Harrisburg (AP)	0	3	116	201	650	913	771	918	892	513	140	8	5125	5412
Park Place (CO)	0	20	246	328	832	1097	963	1139	1117	686	295	108	6831	
Philadelphia (CO)	0	0	46	118	541	753	642	849	788	463	148	12	4360	4739
Philadelphia (AP)	0	1	64	148	574	804	664	868	809	467	144	10	4553	
Pittsburgh (CO)	0	2	121	192	621	841	691	858	872	524	98	16	4836	5349
Pittsburgh (AP)	0	5	149	213	679	899	746	908	931	566	118	29	5243	5658
Reading (CO)	0	1	93	166	622	836	732	895	857	487	156	14	4859	5232
Scranton (CO)	0	14	166	259	740	976	841	1028	998	598	181	58	5859	6218
Williamsport (AP)	0	8	163	284	751	1023	883	997	1003	598	169	41	5920	6055
RHODE ISLAND														
Block Island (CO)	0	1	78	191	561	798	755	931	939	632	422	90	5398	5897
Providence (CO)	0	3	100	231	644	867	847	1016	948	539	252	26	5473	5984
Providence (AP)	0	6	131	271	695	930	876	1047	989	580	309	52	5886	
SOUTH CAROLINA														
Charleston (CO)	0	0	0	0	236	349	150	234	297	128	0	0	1394	1866
Charleston (AP)	0	0	1	8	322	395	160	279	330	156	1	0	1652	
Columbia (CO)	0	0	13	23	348	492	250	347	413	168	3	0	2057	2488
Columbia (AP)	0	0	17	20	372	516	253	383	420	184	2	0	2167	
Greenville (AP)	0	10	41	58	481	643	397	466	519	237	7	0	2859	3059
Spartanburg (CO)	0	8	38	59	470	649	384	469	516	238	9	0	2840	
SOUTH DAKOTA														
Huron (AP)	3	13	215	503	733	1410	1930	1360	1258	806	349	61	8641	7940
Pierre (AP)	3	7	170	482	608	1426	1926	1346	1275	756	365	60	8424	7283
Rapid City (AP)	0	9	184	554	569	1331	1736	976	1231	801	449	107	7947	7197
Sioux Falls (AP)	4	14	237	474	755	1351	1834	1258	1232	807	331	80	8377	
TENNESSEE														
Bristol (AP)	0	0	95	111	637	701	462	618	674	397	21	10	3726	
Chattanooga (CO)	0	0	14	40	435	587	313	412	447	216	0	0	2464	
Chattanooga (AP)	0	0	36	69	521	673	334	479	510	250	0	0	2872	3238
Knoxville (AP)	0	0	50	83	542	680	407	526	539	298	3	1	3129	3658
Memphis (AP)	0	0	29	111	425	581	465	488	500	235	4	0	2838	3090
Nashville (AP)	0	0	43	121	508	670	509	582	557	312	8	1	3311	3613
TEXAS														
Abilene (AP)	0	0	6	137	214	513	541	340	310	128	18	1	2208	2573
Amarillo (AP)	0	1	31	262	367	827	788	526	555	288	74	13	3732	4196
Austin (AP)	0	0	0	52	112	348	329	261	226	70	0	0	1398	1679
Big Spring (AP)	0	0	11	154	227	551	497	331	290	126	19	2	2208	
Brownsville (AP)	0	0	0	10	19	83	74	36	49	0	0	0	271	628
Corpus Christi (AP)	0	0	0	18	49	124	119	87	95	10	0	0	502	965
Dallas (AP)	0	0	5	110	200	459	516	334	320	132	2	1	2079	2367
Del Rio (CO)	0	0	0	38	94	306	188	168	107	28	0	0	929	1501
El Paso (AP)	0	0	0	139	277	653	484	320	221	42	7	0	2143	2532
Ft. Worth (AP)	0	0	6	115	213	472	540	335	305	123	4	0	2113	2355
Galveston (CO)	0	0	0	21	62	190	127	88	137	30	0	0	655	1174
Galveston (AP)	0	0	0	19	75	178	120	92	137	25	0	0	646	
Houston (CO)	0	0	0	32	87	239	158	131	167	38	0	0	852	
Houston (AP)	0	0	1	34	120	238	149	139	179	45	0	0	905	1315

CO indicates data from city office; AP from airport; * from cooperative stations.

MONTHLY AND SEASONAL HEATING DEGREE DAYS

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ıble 3A-Continued

State and Station	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total for Season	Long-Terms Mean July-June
TEXAS (Cont'd.)														
aredo (CO)	0	0	0	17	29	171	99	93	78	7	0	0	494	
ıbbock (CO)	0	0	28	236	321	742	673	479	464	197	44	7	3191	
ılestine (CO)	0	0	5	68	167	384	353	267	282	104	0	0	1630	2068
ort Arthur (CO)	0	0	1	27	118	246	132	115	167	41	0	0	847	1352
ort Arthur (AP)	0	0	3	31	184	284	138	152	215	54	0	0	1061	
an Angelo (AP)	0	0	0	138	185	468	436	307	275	111	8	2	1930	
an Antonio (AP)	0	0	0	40	106	296	246	228	189	48	0	0	1153	1435
ictoria (CO)									136	23	0	0	754	
ichita Falls (AP)	0	0	17	144	250	580	661	416	373	161	19	1	2622	
aco (AP)	0	0	0	73	164	418	432	302	272	96	1	1	1759	
UTAH														
ilford (CO)	0	1	60	538	678	1302	1351	805	775	492	346	90	6438	
alt Lake City (CO)	0	0	42	476	529	1002	1090	757	711	446	303	57	5413	5624
alt Lake City (AP)	0	0	58	520	624	1077	1184	805	741	488	334	76	5907	6079
VERMONT														
rlington (AP)	2	20	197	378	950	1139	1191	1338	1280	736	273	61	7565	8051
VIRGINIA														
lexandria E.H.S.*	0	0	48	127	492	745	525	756	704	374	66	0	3837	
ape Henry (CO)	0	0	9	42	391	571	363	536	544	330	109	0	2895	3538
alls Church *	0	3	95	191	566	650	579	782	742	393	82	4	4087	
ynchburg (AP)	0	6	85	142	523	753	529	705	682	344	71	0	3840	4068
orfolk (CO)	0	0	12	43	363	545	351	543	534	283	62	0	2736	3364
orfolk (AP)	0	0	24	76	422	593	371	575	559	309	82	0	3011	
otomac Yards(Alexandria)	0	0	34	95	456	698	487	724	649	313	49	0	3505	
ichmond (CO)	0	0	36	105	433	660	452	645	606	310	66	0	3313	3922
ichmond (AP)	0	0	52	135	478	700	483	676	631	327	85	2	3569	
oanoke (AP)	0	8	93	140	536	764	534	686	687	346	69	6	3869	
rbanna (CO)	0	0	47	104	477	671	434	660	625	341	97	5	3461	
WASHINGTON														
llensburg (AP)	48	43	172	598	727	1080	1817	1091	870	654	373	157	7630	
elso (CO)	101	93	147	540	467	790	1167	715	659	539	397	78	5693	
orth Head (CO)	284	151	201	451	356	682	968	626	652	533	491	252	5647	5367
lympia (AP)	133	115	189	552	486	820	1204	708	719	579	423	157	6085	
ort Angeles (CO)	304	261	269	531	504	743	1112	689	692	566	474	294	6439	
eattle (CO)	77	42	112	433	405	722	1117	604	619	452	332	120	5035	4815
eattle (AP)	71	40	138	484	441	758	1164	632	635	473	333	106	5275	
pokane (AP)	39	37	155	644	713	1155	1735	980	901	629	390	160	7538	6318
tevenson (CO)	83	41	96	517	495	800	1324	882	716	503	336	131	5924	
acoma (CO)	85	65	157	477	421	767	1128	638	655	509	372	152	5426	5039
atoosh Island (CO)	346	266	299	482	422	725	1072	663	705	581	528	363	6452	5837
alla Walla (CO)	1	0	64	443	518	816	1468	841	634	430	206	81	5502	4910
akima (AP)	25	22	127	547	641	973	1625	991	750	544	259	79	6583	5585
tampede Pass (CO)	376	327	369	822	787	1233	1747	1133	1158	985	813	486	10236	
WEST VIRGINIA														
lkins (AP)	0	18	220	270	760	892	694	856	914	586	185	71	5466	5800
ntington (AP)	0	0	78	110	541	707	515	664	661	329	35	2	3642	
arkersburg (CO)	0	1	127	172	594	807	652	769	788	440	80	16	4446	4928
WISCONSIN														
reen Bay (CO)	4	15	276	430	938	1279	1530	1346	1256	881	380	97	8432	7931
a Crosse (CO)	0	8	195	311	777	1255	1522	1236	1155	731	199	36	7425	7421
a Crosse (AP)	2	21	247	376	851	1344	1610	1370	1225	777	245	72	8140	
adison (CO)	0	8	220	323	801	1202	1373	1223	1160	756	226	53	7345	7405
adison (AP)	0	13	256	374	842	1225	1363	1226	1151	759	229	48	7486	
ilwaukee (CO)	2	2	179	334	793	1142	1228	1119	1100	772	369	63	7103	7079
ilwaukee (AP)	4	5	203	357	801	1126	1237	1144	1107	767	349	64	7164	
WYOMING														
asper (AP)	8	13	234	747	669	1259	1460	896	1051	722	575	146	7780	
heyenne (AP)	19	27	218	666	595	1160	1265	870	1035	734	575	158	7322	7536
ander (AP)	3	3	198	792	672	1372	1460	930	1015	690	586	178	7899	8243
ock Springs (CO)	5	11	199	744	696	1287	1400	1118	1016	682	531	180	7869	
ock Springs (AP)	5	26	228	825	731	1335	1459	1179	1117	755	604	190	8454	
heridan (AP)	4	7	233	696	585	1339	1775	1025	1122	716	496	149	8147	
ALASKA														
nchorage (AP)	284	320	460	925	1172	1799	1855	1607	1156	884	608	353	11423	
nnette Island (AP)	310	268	300	583	590	1079	1419	823	832	725	616	258	7803	
arrow (CO)	838	717	930	1193	1745	2334	2119	2496	2385	1879	1386	930	18952	
ethel (AP)	325	427	519	976	1183	1818	1605	1922	1359	1163	820	485	12602	
ordova (AP)	434	401	485	777	929	1439	1565	1253	1040	903	719	435	10380	
airbanks (AP)	165	295	499	1153	1610	2340	2044	2456	1464	1078	538	208	13850	
alena (AP)	150	338	521	1195	1567	2339	2020	2376	1616	1192	685	311	14310	
ambell (CO)	682	571	736	944	1212	1556	1295	1515	1840	1422	1172	840	13785	
uneau (AP)	363	369	426	729	770	1364	1764	1160	997	822	620	262	9646	
otzebue (AP)	387	419	552	1174	1460	2113	1761	2136	1824	1465	1129	667	15087	
cGrath (AP)	211	364	517	1139	1475	2391	2059	2331	1515	1077	643	318	14040	
ome (AP)	513	498	553	988	1228	1849	1603	1915	1528	1294	970	700	13639	
orthway (AP)	243	290	548	1364	1880	2532	2330	2475	1729	1220	639	196	15446	
t. Paul Island (AP)	602	570	616	836	983	1080	993	1187	1129	1037	935	733	10701	
akutat (AP)	416	400	455	743	850	1299	1623	1088	1027	905	716	435	9957	

) indicates data from city office; AP from airport; * from cooperative stations.

Table 4 JUNE 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Grand Rapids, Mich.	2	Evening			1		$8,000		Electrical, wind, and rain	Basements and streets flooded in many sections of City. Lightning caused death of one man.
Ft. Myers and vicinity, Fla.	2						Minor	Minor	Hail	Hailstones up to 1 1/2 inches in diameter fell for about 10 minutes. Gusts of wind up to 42 m.p.h.
Cedar Point, LaSalle County, Ill.	2				1				Electrical	Youth killed by lightning.
Charleston and vicinity, W. Va.	2								Wind	Severe thunderstorm with winds reported up to 50 m.p.h. wrecked a float plane on Kanawha River and caused another plane to be wrecked in forced landing in field near Charleston.
St. Joseph County, Ind.	2-3						3,500	2,000	Electrical and rain	Lightning set house afire. Crops damaged by erosion.
Kosciusko (9 miles northwest of), Miss.	3	1:15 a.m.	50	Short	2	1	28,000	5,000	Tornado	Moved northeastward over sparsely settled and mostly wooded land. One home and 6 other buildings destroyed; 5 damaged.
Lafayette, Macon County, Tenn.	3	10:30 a.m.					25,000	1,000	Wind and rain	Storm moved northeastward. Roofs damaged, with parts of several roofs of downtown department stores and bank completely blown off; stocks damaged by water. Some damage to trees, shrubbery, and crops.
St. Johns, Ariz.	3	Afternoon				1			Electrical	Man seriously injured by an indirect lightning strike, when going through barb-wire fence; thunderstorm some distance away.
Hartford and Tolland Counties, Conn. and Plymouth County (northern portion), Mass.	3	Late afternoon					Minor	Minor	Hail and squalls	Local damage to crops at numerous points in north-central Connecticut. Wind damage at Brockton, Mass. Total probably under $1,000.
Spartanburg, S.C.	3	9:56-10:55 p.m.	440	3			6,000		Wind	At Memorial Airport several parked airplanes severely damaged.
Carroll County (northeast portion), Ga.	4	7-7:10 a.m.	200	2	0	0	1,550	400	Tornado	Storm moved eastward, crossing U.S. Highway 78 about 3 miles south of Villa Rica. A number of barns heavily damaged, with damage to roofs of eight homes and some porches torn off. High winds damaged fields of corn, oats and hay, and some stored crops blown away.
De Kalb County (northeast portion), Ga.	4	9 a.m.	75-100	3	0	1	3,000		do	Storm struck first at intersection of Clairmont and La Vista Roads, where a large tree fell across a home, heavily damaging it. Storm moved eastward to about Tucker, blowing down 7 poles and several miles of power lines and leaving some sections without electricity about 5 hours. Many trees broken or uprooted; a number of windows blown out; small garage destroyed; barn unroofed.
Back Bay, Princess Anne County, Va.	4	Early afternoon					1,500		Waterspout	Small boathouse on Cedar Island destroyed. One passenger boat damaged. Club house damaged by falling tree.
Lamesa, Dawson County, Tex.	4	9 p.m.						50,000	Wind and hail	Hail damage $45,000; wind, $5,000.
Vaughn and vicinity, N. Mex.	4	P.m.					1,600		Hail	Damage confined to airplanes, roofs, windows, and neon signs.
Ruidoso, N. Mex.	4	P.m.							do	Slight damage to roofs and neon signs.
Mertzon (near) Irion County, Tex.	5	2 a.m.	880				500	500	do	Over ranch country, about 15 miles northwest of Mertzon.
Ross, McLennan County, Tex.	5	4 a.m.	†10				1,000		Wind	
Pattison (near), Waller County, Tex.	5	Afternoon					500	5,000	Hail and wind	Wind damage, $500; hail, $5,000.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Brenham, Washington County, Tex.	5	3:55 p.m.	†5	25	0	6	$210,000	$345,000	Tornado and hail	Hail damage, $275,000; tornado, $280,000.
Kenney, Austin County, Tex.	5	4 p.m.	†5	25	0	2	895,000	1,100,000	do	Hail damage, $1,000,000; tornado, $995,000.
Poteet, Atascosa County, Tex.	5	6 p.m.	†1 1/2	15			5,000	15,000	Hail and wind	Hail damage, $18,000; wind, $2,000.
Halletts-ville, Lavaca County, Tex.	5	7 p.m.	†1 4/5	7			250	5,500	do	Hail damage, $5,150; wind, $600.
Melstone, Mont.	5						4,000		Wind	Some roofs blown off.
San Joaquin Valley, Calif.	6	11:30 a.m. -10:30 p.m.					10,000	21,000	do	Fruit blown from trees; a few trees forced down and numerous limbs broken; automobile hit by falling limb; some canes on grape vines broken. Dust clouds reported up to 7,300 feet over Kettleman City. Fastest mile at Fresno Airport was 34 m.p.h.
Colorado, western and southern portions.	6,7, and 8						20,000	75,000	do	Strong winds caused heavy soil movement and damaged crops, telephone and power lines, trees, and small buildings. Fruits blown from trees in Colorado and Gunnison River Valleys. Prevailing wind from west-southwest, and velocities reached gale force in many localities.
Niobrara County, Wyo.	7	2:30-5p.m.			0	1			Tornado hail, and wind	Twenty percent to 90 percent damage, depending on stage of crop. Hailstones 2 inches in diameter did considerable damage to range and some ranch buildings.
Casper (3 miles south-west of), Wyo.	7	Afternoon			1				Electrical	
Fort Valley (6 miles east of), Ga.	7	5-6 p.m.	400	1/2			10,000	40,000	Wind	High winds demolished an airport hanger and an airplane, and caused miscellaneous minor property damages. A number of pecan, oak, and pine trees blown over, and 1/2 to 3/4 of peaches blown from trees in area of storm, and considerable grain damaged by high winds.
Barnesville, Ga.	7	6:30 p.m.	300	2-4	0	0	1,500		Tornado	Storm struck southeastern Barnesville, with heaviest damage at a tourist camp, where awnings blown from buildings and some furniture blown several hundred yards away. A number of utility poles blown down on Highway 341 near Barnesville, causing a 16,000-volt power line to drop almost to ground.
Center Hill (near Atlanta), Ga.	7	Late afternoon					2,000		Wind	Very small area affected. A number of trees blown down; a huge oak fell on a home and an automobile, heavily damaging both.
McPherson County, Kans.	8	8:10-9:15 p.m.	700	18	1	5	200,000	20,000	Tornado	Storm moved eastward, beginning in Rice County and ending 4 miles southeast of McPherson. Vortex cloud not observed due to darkness. Some damage from wind, rain, and hail. Buildings, trees, and power lines destroyed. May have been two funnels, one southwest of Windom and the other just south of McPherson, but both along the same squall line.
Fort Peck, Mont.	8				1				Blizzard	Heavy snow and wind took one life near Fort Peck when automobile stalled.
** Lincoln County, Kans.	** 9	4 a.m.	†4	10			100,000	145,000	Hail and wind	Storm moved eastward. Twenty sections of wheat damaged. Piles of hail in shaded places until 6 p.m. Practically all buildings in Lincoln, where storm centered, received some damage. Greenhouses suffered broken glass and damaged plants. Hail varied in size from golf balls to eggs, resembling jagged pieces of ice. Hailstones fell in constant barrage for 20 minutes. Damage intensified by strong gales of wind. Hail damaged paint and dented automobiles.
Wabaunsee County, Kans.	9	7:30 a.m.	†1	1 1/2			5,000		Hail	Most damage restricted to within city limits of Alma. Damage to roofs, automobiles, and gardens. Some stones as large as golf balls.
Johnston Community (4 miles north of Crocker), Mo.	9	1 p.m.	220	3	0	0			Tornado and hail	Considerable damage to trees, roofs, and windows. Some chickens and pigs killed by hail. Some hail described as "jagged chunks of ice up to 3 inches in diameter."
Crocker and vicinity, Mo.	9	5 p.m.	†10	15					Wind	Some damage to crops, buildings, and automobiles.

**For additional storms this date see Wisconsin's report on last page of this table.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Blackwell (east of), Kay County, Okla.	9	6:25 p.m.	100	Short	0	0	$4,000		Tornado	Large barn destroyed. Several power lines destroyed.
Vinita (near), Craig County, Okla.	9	10:38 p.m. - 12 midnight					2,000		Hail	Damage to roofs.
Coffey County, Kans.	9	11:45 p.m.	†3	8				$10,000	do	Storm occurred in northeastern corner of county. Some hail size of hens' eggs.
Dent County (northwestern portion), Mo.	9		3	4			100,000	110,000	do	Average size of hailstones that of golf balls; some as large as tennis balls. All gardens, much timber and small grain destroyed. Much damage to roofs; many windows broken, according to the Extension Agent.
Downs (near), Ill.	9						3,000		Electrical	Barn destroyed by lightning.
Hailey and vicinity, Mo.	10	2 a.m.	†1				2,000		Wind, hail, and electrical	Some timber blown down. Most of property damage from fire, following lightning strike.
High Lookout Tower (near Birch Tree), Mo.	10	Early morning	300						Wind	Damage mostly to orchard and forest trees. Aggregate damage not great.
Harper, Woodward, Dewey and Custer Counties, Okla.	10	10 a.m. to 3:30 p.m.	†8-30	100		1	125,000	650,000	Hail, rain, and wind	Heaviest hail near Fay, Custer County where an area 1/2 by 1 mile swept completely clean, killing five cattle, hundreds of chickens, and countless birds and rabbits. Hail at Aledo, Custer County, took bark off trees. Hail north of Rosston and north of Supply in Harper County killed several calves; cattle badly bruised, and wheat a total loss. Hail loss totaled $710,000 of which $650,000 to wheat and other crops, and $60,000 to roofs and windows. Heaviest rain at Mutual, where 10.23 inches fell in less than 2 1/2 hours. Four inches of hail on ground at Mutual. High winds near Taloga caused about $3,500 damage. News accounts indicated tornadoes were seen near Taloga and Seiling, but observers in these areas stated true funnels were not seen, and damage was done by high winds. One person slightly injured by hail.
Aroostook County, Maine and Cheshire County, N.H.	10	2 p.m.-12 midnight					1,000		Thunderstorm	In vicinity of Fort Fairfield power line damage considerable. Observer at Masardis called it "worst storm of season". Vigorous squall-line passed across central New Hampshire, causing scattered damage.
Oklahoma County, Okla.	10	4 p.m.					2,000		Wind	Damage to planes, barracks, and other structures at Tinker Field.
Harmon County, Okla.	10	6-8 p.m.					5,000	35,000	Hail and rain	Heavy rains caused practically all cotton and young feed crops in northern part of county to be washed out, or covered, resulting in $25,000 damage to cotton crop, $5,000 to feed crops, and $5,000 to wheat; $5,000 damage to roofs by hail. Three persons washed off road into a creek, but they swam out.
St. Petersburg, Fla.	10						10,000	Minor	Wind and electrical	One Coast Guard plane and 3 civilian planes damaged by winds estimated at 75 m.p.h. Lightning caused serious damage to 1 home and minor fires to 3 others. Telephone and power service disrupted. Storm moved westward.
Barber (near), Mont.	11	3:40-4:20 p.m.	†2	8-10					Hail	Severe damage to grains and alfalfa. Hail severe enough to kill one calf.
Cascade, Mont.	11	4 p.m.	†3	10					do	Hail up to 3/4 inch in diameter. Damage of 10 to 20 percent to crops in local areas.
Stanford to Denton, Mont.	11	5-6 p.m.	†4-5	6-8					do	Hail up to hens' egg size caused severe damage to crops; 3 to 4 sections of wheat total loss, balance partial loss.
Dundy County (northeastern portion), Nebr.	11	Late afternoon	†3	20			Slight	80,000	do	
Grant County, Kans.	11	7:30 p.m.	†1				3,000		do	Storm approached from southwest.
Hayes County (south-central portion), Nebr.	11	7:30-8 p.m.	†10	20			2,250	25,000	Hail and wind	

See footnotes at end of table.

Table 4—Continued

JUNE 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Spokane and immediate vicinity, Wash.	11	7:30-10 p.m.					$35,000	$5,000	Rain, hail, and electrical	Torrential rain, accompanied by damaging lightning and light hail occurred in northeast suburbs of Spokane and farm areas immediately adjacent, covering about 4 square miles. Principal damage in Bigelow Gulch where flash flood waters converged. Roads and streets badly damaged and many small bridges carried away. Lightning did some damage to electrical circuits in larger area. Principal crop damage was to lowland truck crops in Bigelow Gulch.
Telegraph Creek, Mont.	11	Night							Wind and hail	Severe damage to crops and buildings.
Minnesota, west-central counties	12	A.m.-p.m.					15,000		Thunder-squalls	A few barns and outbuildings demolished; silos and windmills wrecked; business buildings, houses, garages, barns, and lake cottages damaged; poles and wires down; many trees uprooted or branches broken off. Unusual darkness preceded storm. Heavy rains occurred. Storm moved southeastward.
Ryegate (7 miles southwest of), Mont.	12	4:15-5:15 p.m.	†20	20					Hail	Heavy hail 1/2 inch in diameter killed several lambs, and caused severe damage to alfalfa and slight damage to wheat.
Culdesac-Spalding (Lapwai Valley), Idaho	12	Afternoon					6,000	500	Rain	Damaged railroad tracks and bridges.
Lewiston (Lindsay Creek area) Idaho	12	Evening					25,000	1,000	Rain and flash flood	Serious damage to Lewiston City Water Purification Plant.
Choteau, Mont.	12	Evening							Hail	Slight damage to crops.
Nebraska City and area to west, Nebr.	12	Early night	†2	3-4			50,000	75,000	do	
Des Moines, Iowa	12						500		Electrical	Lightning set fire to house.
Crawford County (western portion), Iowa	12								Hail and electrical	Extensive hail damage to crops, particularly in vicinity of Schleswig, Dow City, and Manilla. Two steers killed by lightning.
Red Wing and vicinity, Minn.	12-13	P.m.-a.m.							Rain and flood	Excessively heavy rains, accompanying severe thunderstorm, flooded basements, streets, roads, highways, and farm lands. Hay Creek overflowed its banks and undermined 500 feet of railroad track. A number of bridges and culverts washed out. A dam near Maiden Rock broke and four store buildings flooded. Much merchandise in basements damaged. Gardens and growing crops washed out or drowned. Much soil erosion occurred. Brooder house swept off its foundation and 350 chicks perished. Some livestock drowned. At Red Wing, 7.60 inches of rain fell in a little over 12 hours, establishing a new record at that station for 24-hour rainfall. Traffic seriously delayed.
**	**									
Svea and Zumbrota (vicinities of), Minn.	13	1:30 a.m.					2,500		Electrical	A barn and chicken house destroyed by fire after being struck by lightning. A cow perished and farmer suffered burns. Another cow killed by lightning near Zumbrota.
Milledgeville, Carroll County, Ill.	13	3 a.m.			0	0	20,000		Tornado	School building badly damaged; barn destroyed; many trees uprooted; several hogs killed.
Rock Island-Moline area, Ill.	13	4 a.m.					1,000		Wind	Two homes and two cars damaged; several trees downed.
Rock Falls, Ill.	13	5:20 a.m.					205,000		Electrical	Lightning set fire to large store, which was destroyed.
Jamestown, N. Dak.	13	9:50-10:20 a.m.							Rain, hail and wind	Nearly 2 inches of rain fell, most of it in 15 minutes, flooding basements and streets. Hail fell about 10 minutes, with stones up to 1/4 inch in diameter. Wind gusts up to 80 m.p.h. reported by Northwest Airlines. Storm brought virtual darkness to area. Crops probably not severely damaged.

**For additional storms this date see Wisconsin's report on last page of this table.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Alice, N. Dak.	13	10 a.m.		2			*$65,000	*	Tornadoes, rain and hail	Twin twisters converged on Alice, going down main street and moving southeastward; damage estimated at $50,000. Ottertail Power Co. estimated $7,000 damage to poles, lines, and substation. A farm 2 miles northwest of Alice estimated $7,500 damage when 2 barns, chicken house, and garage flattened and car damaged. An estimated 3 inches of rain and hail fell, damaging crops. Flax crops believed a total loss; many other crops damaged, but they might recover. Almost total darkness accompanied storm. A man and wife were standing about 2 feet apart in their home at Alice when a 10-foot 2"by 4" was driven through the house and passed between them without injury. Another man was standing in his farmyard 2 miles west of Embden when he was picked up by wind, rolled about in the air, then deposited on ground unhurt.
Jasper, Ind.	13	12:30 p.m.	100	1/4			7,500		Wind	Buildings damaged; one roof blown off.
Slater-Bordeaux area, Platte County, Wyo.	13	3-7 p.m.	†4	15					Hail, wind, and electrical	Twenty-five hundred acres of wheat and 500 acres of hay destroyed. Hailstones 3/8 inch to 2 inches in diameter; accumulation 6 inches average to 2 1/2 foot drifts. One small dam destroyed. Lightning caused electric and telephone power failures.
Hillrose, Colo.	13	3:30-4:30 p.m.	†4	8				$10,000	Hail	Storm of short duration and spotted. Considering area covered, damage, which was limited to crops, comparatively light.
Hamilton, Mont.	13	5 p.m.							Rain and wind	Heavy rain caused some soil washing; some small bridges and culverts washed out.
Knox County, Nebr.	13	6 p.m.	220	4	0	1	26,500	3,000	Tornado	Livestock loss estimated at $1,500.
Cheyenne County, Kans.	13	7 p.m.	880	12					Hail	Damage rather light over north half of country. Wheat losses ranged from 10 to 50 percent. Storm moved eastward. Some broken automobile windshields and glass windows. Storm moved from Joes and Idalia, Colo. where most severe.
Chugwater (8 miles east of), Wyo.	13		†3						Hail, wind, and electrical	Seventy percent damage to 2000 acres of wheat. Same storm that affected Slater-Bordeaux area.
Wayne, Du Page County, Ill.	13								Electrical	Riding club stable struck by lightning; 13 horses died in fire.
Merrick County, Nebr.	13-14	11 p.m.-3 a.m.					10,000	Minor	Wind	Three barns unroofed, numerous trees down, and many haystacks scattered.
Louisville, Ky.	14	A.m.					850		Electrical	Lightning caused minor fires in two houses and damage to a third.
Shelbina (southwest of), Mo.	14	Early morning	100		0	0		0	Tornado	One farm house damaged and several outbuildings demolished.
Champaign County, Ill.	14	1:04 p.m.			0	0	0	0	do	Tornado funnel observed 10 miles south of Chanute AF Base. No damage occurred, as the funnel did not reach the surface.
Raynesford, Mont.	14	2:30-3 p.m.	†1	6					Hail	Hail up to one inch in diameter caused considerable grain and hay damage.
Stanford, Mont.	14	3-3:30p.m.	†3	4			*50,000	*	do	Hailstones, some larger than hens' eggs, caused severe damage to buildings. Damage more property than crop.
Russell County, Kans.	14	3-6 p.m.						100,000	Wind	Damage confined to Dorrance vicinity. No tornado clouds observed. Wheat blown down. No damage to buildings.
Geyser to Lewistown, Mont.	14	4-5 p.m.	†5						Hail and wind	Hail up to 3 inches in diameter caused grain losses and death to some young calves. Some buildings sustained heavy roof and window damage.
Spring Grove and vicinity, Minn.	14	5 p.m.						10,000	Hail	Heavy hail accompanied a severe thunderstorm. A few fields of corn and small grains reported to be a total loss.
Hardin, Mont.	14	5-5:30 p.m.					*10,000	*	do	Hailstones up to 6 inches in circumference caused severe structural damage to roofs, windows, siding on homes, and broke automobile windows. Total loss to some grains and hay.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Danvers (west of), Mont.	14	5-5:30 p.m.	†1 1/2	5					Hail	Hail to walnut size caused heavy local grain damage.
Havre (35 miles northwest of), Mont.	14	5-6 p.m.	†4	6-8					Hail and rain	Hail 1 inch in diameter caused considerable damage to wheat. Some sheep drowned.
Russell County, Kans.	14	5:15 - 5:45 p.m.						$20,000	Hail	Hail, some the size of golf balls, fell in area southeast of Russell. Storm covered a path from southwest to northeast across south-central part of county. Wheat principal loss.
Horton, Weston County, Wyo.	14	6:45-7:15 p.m.	†1	5			Slight		Hail and wind	Several thousand dollars damage to hay and grain. Hailstones 2 inches in diameter.
Horton (8 miles south of), Wyo.	14	Afternoon			0	0			Tornado	Uprooted trees and fences in spots within 3 mile area.
Vida (near), Mont.	14	8-8:02 p.m.	†12	12					Hail	Stones as large as marbles caused light damage; several windows broken.
Hobson (3 miles northeast of), Mont.	14		†4						do	Stones up to golf ball size caused 95 percent crop loss in some sections, and broke many windows.
Hysham, Mont.	14		†4	6					Hail, wind, and rain	Hail to 1/2 inch diameter and driving rain caused considerable damage to gardens. Wind broke down some trees.
Brusett, Mont.	14		†1 1/2				$1,000		Hail and rain	Heavy hail damaged roofs and broke windows. No estimate of crop damage.
Shelbina (5 miles west of), Mo.	14								Electrical	Two horses struck and killed by lightning. One building and contents (mostly baled hay) destroyed by following fire.
Tippecanoe County, Ind.	15	4 p.m.	†2	4			4,000	2,000	Wind	Trees downed; buildings damaged.
Batesville and vicinity, Ind.	15	4 p.m.	†5	10			20,000	15,000	Hail and wind	Hail up to 1 1/2 inches in diameter. Many windows broken; roofs damaged; autos dented.
Clay County (northeastern portion), Nebr.	15	4 p.m.			1		Small		Electrical	Man struck and killed while cultivating corn. Some hail, but practically no damage.
Minnesota, northwestern, westcentral, and southeastern counties	15	4:30-7:50 p.m.	†10	200		1	*127,600	*	Thunder-squalls, including hail	A number of barns, outbuildings, silos, and windmills demolished; houses, garages, barns, automobiles, and farm machinery damaged; plate glass windows broken; signs, awnings, poles, and wires down; hundreds of trees uprooted; a number of livestock and about 5,000 turkeys perished; growing crops damaged. Heavy rains and hail accompanied storm which moved southeastward, over path about 200 miles long.
Barnesville (vicinity of), Minn.	15	4:42 p.m.	67	4	0	2	5,000		Tornado	A farm home and barn demolished. A number of trees uprooted. Storm moved southeastward. A funnel-shaped cloud observed about 4 miles southeast of Barnesville. Uprooted trees left lying on ground in different directions.
Howard County, Ind.	15	6:30 p.m.				2	12,000		Wind and electrical	Wires downed; roofs damaged. Lightning set barn on fire.
Brown County Ind.	15	6:30 p.m.					1,500	1,500	do	Crops and buildings damaged.
Nezperce area, Idaho	15	6:30-7:30 p.m.	†2	10			25,000	100,000	Hail and rain	Severe damage to winter peas and winter wheat. Property damage consisted of heavy washing of soils.
Mesa-Council area, Idaho	15	6:30-10 p.m.	†1 1/2						do	Indeterminate damage to field and apple crops.
Henry County Ind.	15	7 p.m.				3	15,000		Wind and electrical	Buildings damaged; trees and wires downed. Barn struck by lightning.
Cass County, Ind.	15	7 p.m.							do	
Story County (southwestern portion), Iowa	15	8-8:30 p.m.	300	5	0	5	26,000	5,000	Tornado	Two farmsteads demolished; 13 steel bins destroyed; 1 automobile severely damaged; numerous trees uprooted; corn and soybeans destroyed. Injuries of a minor character. Storm moved about 10 m.p.h. through farming area about 3 miles south of Ames and Nevada.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Sterling (15 miles southwest of), Colo.	15	9:30-10 p.m.	†2	10				$17,500	Hail	Hailstones small, but storm intense for period of 10 minutes. Damage mostly to crops.
Ottertail and Stearns Counties, Minn.	15	P.m.	†1				$4,000	26,000	do	Heavy hail accompanied a severe thunderstorm. Much poultry perished, and some livestock injured.
Lyon and Osceola Counties, Iowa	15						Minor	Minor	Tornado clouds	Observed by many persons.
Colfax (2 miles southwest of), Iowa	15				1				Electrical	Farmer killed in field by lightning.
Des Moines, Iowa	15								do	Telephone service interrupted on 2000 telephones. Electric service interrupted to 100 homes.
Anderson, Ind.	15						500		Wind	Wires downed.
St. Joseph, Laporte, Elkhart, and Marshall Counties, Ind.	16	2 a.m.					5,000		Wind, hail, and electrical	Trees and wires downed. Hail 1/4 inch in diameter.
Laporte, Ind.	16	2:30 a.m.	200	3/4			15,000		do	Buildings and autos damaged.
Wichita County, Kans.	16	3:30 p.m.	†2	30	0	0	3,000	9,000	Hail and tornado	Hail and tornado occurred in a path extending from the southeastern part of county to northeastern corner. Hail ranged from 1 to 3 inches in diameter. A funnel cloud plainly seen, but few buildings hit. Greatest loss to wheat from hail.
Denver, Colo.	16	3:40-8:30 p.m.	†3	5		Several	725,000	25,000	Hail and rain	One of most severe storms in years deluged southwest quadrant of city and adjoining suburban area. Area affected exceeded 15 square miles. Hail ranged from size of peas to golf balls and accumulated at many points to an average depth of 1 inch and in drifts of several feet. Total precipitation at Weather Bureau city office, located somewhat outside the area of severest precipitation, was 2.23 inches. A large portion of southwestern Denver inundated from 2 to 6 feet deep, and many residents evacuated from flood-bound section. Hail severely damaged vegetation, but greater losses were to homes, business houses, and their contents. Injuries were of a minor nature.
Minonk (near), Ill.	16	5:15 p.m.			1	4			Electrical	One man killed; 4 others injured by lightning.
Cass County, Ind.	16	6 p.m.					5,000	1,000	Wind and electrical	Wires downed. House struck by lightning.
Indianapolis, Ind.	16	6 p.m.					5,000		do	Minor wind damage. Lightning struck building and set it on fire.
Cowlitz and Clark Counties, Wash.	16	6-8 p.m.						Minor	Rain, hail, and electrical	Very heavy rain with light hail occurred over southern portions of these counties, especially at Longview and Vancouver. Some flooding in lowlands and streets of both cities. Principal damage from lightning which struck at numerous places, knocking out a number of power lines, also striking two homes and numerous trees. Larger damage to power and communication lines, probably several thousand dollars.
Henry County, Ind.	16	7:30 p.m.					1,000		Wind	Trees and wires downed.
Perry, Morgan, and Muskingum Counties, Ohio	16	7:30-11:30 p.m.			1		*10,000,000	*	Rain	Excessive rains caused flash floods in two creeks; affected a 25-square-mile area, including six small towns. Pottery and coal mining interests hardest hit. Death caused by drowning.
Brockport, N.Y.	16	11:00p.m.					2,000		Electrical	Fire set by lightning damaged second floor of apartment building.
Webster County (northeastern portion), Nebr.	16	11 p.m.-midnight	†2 1/2	4-5				2,000	Hail	

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Kenwall, N.Y.	16	11:30p.m.					$9,000		Electrical	Barn fired by lightning, a total loss.
Victor, Mont.	16	Evening						$3,000	Rain	Flash flood damaged bridges, culverts, etc.
Wood, Wirt, Calhoun, Roane, Jackson and Mason Counties, W.Va.	16-17	Night					*132,950	*	Electrical rains, gale winds, and hail	In Mason County, almost complete destruction to several farm buildings from lightning and wind. Damaging heavy rains in all six counties resulted in many local flash floods. In southwestern Wood County near Washington, 17 cars of a fast freight derailed because of washout of 150 feet of track ballast. Hundreds of acres of crops lost from hail and by washout. Many roads flooded for a few hours. Nearly 150 homes in Spencer flooded. House in Calhoun County destroyed by fire started by lightning. Several head of cattle killed by lightning.
Garfield and northern Asotin Counties, Wash.	17	Midnight 16th to 7:30 a.m. 17th			3	2	34,700	9,000	Rain, flash-flood and electrical	At Pomeroy, Garfield County, flash-floods in Niebel-Talman and Linville Gulches did great damage. One large house demolished and several others damaged by converging flood waters in lowlands. One house struck and damaged by lightning. Three persons drowned and two injured by flood waters. A considerable number of livestock drowned, and two automobiles completely destroyed. Crop damage heavy in a limited area in bottom lands. In Critchfield Gulch near Clarkston, Asotin County, much destruction to highways, fences, and crops in lowlands where floods converged. Damage in Clarkston area not estimated.
Connecticut coast and Maine southern coast	17	5-8 a.m.			13				Thunderstorm and squalls	In Long Island Sound, Norwalk to New London, squalls especially severe with nine persons drowned from overturned small boats. Also 4 persons drowned off Maine coast.
Boonville, Mo.	17	8 a.m.					325		Electrical	Lightning struck Knights of Pythias Building.
Southampton County, Va.	17	2-4 p.m.					5,000		Wind and hail	Some autos, barns, and residences damaged by falling trees. Very little permanent damage to crops. Most sections of county had some damage.
Knoxville, Tenn.	17	4 p.m.					2,000	500	Wind, rain, and electrical	Storm moved southeastward. Tennis clubhouse roof blown off. Minor wind damage to other buildings. Minor wind and lightning damage to power and telephone lines. Lightning set one house afire.
Thayer County (eastern and northern portions), Nebr.	17	4-4:30 p.m.	2	10				40,000	Hail	
Yuma, Colo.	17	4-5 p.m.					Light	8,000	do	Storm varied in intensity and was widely scattered to south and east of Yuma
Casper, Glenrock, Douglas and Shawnee, Natrona and Converse Counties, Wyo.	17	5:30-7:15 p.m.				3	15,000	10,000	Hail and wind	Numerous windows broken; 100 automobiles damaged; hangar doors at Douglas blown in; 14- 16-inch diameter trees snapped off at 3 to 5 feet above ground. Hailstones 3 1/2 inches in diameter. Peak gusts of winds estimated at 104 m.p.h.
Box Butte County, Nebr.	17	10:30-11 p.m.	†5	32			51,000	750,000	do	
Riverton, Wyo.	17						*200,000	*	Hail	Heavy damage to buildings and crops, especially at State Prison Farm.
Harlowton, Mont.	17	Evening			1		*300,000	*	Rain	Torrential rain in Antelope-Coulee drainage caused severe flash flood in Harlowton, inundating 30 dwellings with some moved off foundations. About 10 miles of railroad main line damaged of which over 1 mile completely washed out.
Sun River, Mont.	17	Evening							Rain and hail	Minor flash flooding over large area, most damage due to washing out irrigation canals.
Wilson Creek, eastern Grant County, Wash.	18	12:15-1:15p.m.	†3	10					Rain and electrical	In a large area in vicinity of Wilson Creek, flash floods developed, doing considerable erosional and crop damage. Highway and road-bridges also suffered in places.
Laramie County, Wyo.	18	2:30 p.m.			0	0			Tornado	Approached Archer Field Station (east of Cheyenne) from northwest. Lifted from ground 1 mile west of station, passed over and disappeared eastward.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Louisville, Ky.	18	6-10:30 p.m.				1			Electrical	Lightning struck several homes and business places, starting small fires. Wires knocked down. A hole torn in a roof. Injury caused by lightning.
Greeley, Colo.	18	7-8 p.m.	†8	13				$200,000	Hail	Grains damaged to extent of 50 percent; row crop losses somewhat less, but also severe. Sugarbeets and alfalfa retarded and damaged to some extent. Five thousand acres of beans required replanting.
Laramie County, Wyo.	18				1				Electrical	Man struck while on tractor 25 miles north of Cheyenne.
Salem, Ind.	18-19						$1,000	1,000	Flash flood	Blue and Brock Creeks overflowed.
Patrick County, Va.	19	12:30-1 p.m.	†1	30			4,000	400	Wind and hail	Tobacco barns and other outbuildings unroofed in strip adjacent to North Carolina.
Danville, Va.	19	1:30-1:50 p.m.	†1	3			29,000		Line squall	From fair ground area to Beverstone Park, then into Maine Street section, hundreds of window panes broken, roofs smashed, awnings shredded, and famous old trees blown down, twisted, or mangled. Power lines cut and telephones out of order by broken cables.
Pittsylvania County, Va.	19	1:30-3:30 p.m.						5,000	Wind and hail	Tobacco losses by hail in southeastern part of County and also in Concord area.
Brunswick County, Va.	19	1:50-2:15 p.m.	†10	20			50,000	1,000	do	Brodnax, Gholsonville, Ebony, White Plains, Lawrenceville, and Dolphin areas. Tobacco, corn, wheat, and hay damaged about 50 percent in center of path of storm. A few homes destroyed by falling trees. Windows broken in west side of buildings.
Mecklenburg County, Va.	19	2:30 p.m.							do	Considerable damage in Buggs Island Dam - South Hill area. Some barns blown down. Roofs blown off. Trees uprooted and broken off. Power and communication lines torn down. Power service to Boydton, Clarksville, Virgilina and Dryburg areas completely disrupted for some time.
Fort Lupton, Colo.	19	3-3:30 p.m.	†1	8			Light	15,000	Hail	Storm moved southeastward from 3 miles west of Firestone to about 5 miles southeast of Fort Lupton. Hailstones small and damage mostly to garden truck and row crops. Some grain in fields beaten down.
Slater, Bordeaux, and Glendo, Platte County, Wyo.	19	3-4 p.m.	†5	7				95,000	do	Damaged 960 acres of sugarbeets, 400 acres of beans, 4,000 acres of small grains, 3,000 acres of alfalfa, 2,000 acres of corn. Hailstones 3/8 inch in diameter; accumulation of several inches nearly brought highway traffic to a standstill.
Pasquotank County, N.C.	19	4:30 p.m.					2,000		Wind	Heavy damage to power lines in Elizabeth City. Winds estimated to 60 m.p.h.
Dalhart, Hartley County, Tex.	19	8:40 p.m.		15	0	0			Tornado and hail	About 5 miles south of Dalhart.
Halifax County, Va.	19	9:30-10 p.m.	300	3			75	800	Wind	Damage extended from Henry's Mill to 3 miles south. Crops laid on ground. One barn partly unroofed. Trees blown down.
Amarillo, Tex.	19	11 p.m.	†10	25				500	Hail	Moved toward Borger.
Nash and Edgecombe Counties, N.C.	19	P.m.							Wind and hail	Numerous severe thunderstorms in State. Considerable crop and some property damage.
Boyd County, Ky.	19				1				Rain	Flash flood caused death of one person by drowning.
West Morehead, Ky.	19								do	3.75 inches of rain fell in 45 minutes. One hundred residents of area had to be evacuated because of flash floods.
Kentucky, central portion	19								do	Hundreds of acres of newly-set tobacco washed out; also, much damage to corn crop.
Louisville, Ky.	19					1			Electrical	A few homes damaged by lightning.
Wayne, Mingo, and Logan Counties, W. Va.	19-20								Rain	Many local flash floods caused by heavy rains. Roads temporarily closed by high water and washouts. Fields of corn, tomatoes, and tobacco washed away; gardens washed out. Towns of Dunlow, Radnor, Genoa, and Missouri Branch flooded.
South Hill, Va.	20	3 p.m.							Wind and electrical	Similar to storm of previous day, cutting off power, but damage much less than caused by first storm.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Brink, Greensville County, Va.	20	4-4:30p.m.	1300				$5,000	$10,000	Wind and hail	Tobacco broken up badly. Cotton stripped. Wheat beat in ground. Roofs torn off buildings.
Canadian County, Okla.	20	5:20-6 p.m.					50,000	5,000	Wind and rain	Area of about 10 square miles near Union City. Power and telephone lines down. Seven or eight barns destroyed. Most of damage by high straight winds, estimated at 90 m.p.h.
Oklahoma County, Okla.	20	5:30 p.m.					10,000		Wind and electrical	In Oklahoma City several plate glass losses and a building under construction blown down. Traffic stalled. Electric service disrupted. The Fire Department received 10 calls of lightning strikes, but no major damage reported.
Finney, Haskell, Stevens, Grant, and Seward Counties, Kans.	20	5:30 p.m.						115,000	Hail and winds	Several storm paths of varying lengths and widths from southern Finney County southeastward across Haskell, Stevens, Grant, and Seward Counties. Hail mostly small, but shattered ripened grain still uncut. Wind also blew down a considerable amount of wheat, which lodged badly with the rain. Some hail losses up to 75 percent.
Cheyenne County, Kans.	20	8 p.m.	†1 1/2	5				80,000	Hail	Hail caused most of damage to crops as storm moved eastward across southern part of county. Hail mostly small.
Lamesa, Dawson County, Tex.	20	9 p.m.					15,000		Wind	Church under construction badly damaged.
Louisville, Ky.	20	P.m.							Rain, wind, and electrical	Underpasses flooded. Telephone and transportation wires knocked down. Lightning struck several homes. Dusty winds felled trees.
Fort Knox, Ky.	20	P.m.					10,000		Wind and rain	Winds damaged several buildings under construction. Several warehouses unroofed and material in them damaged.
Boaz, Ala.	20				2		200		Electrical	Two brothers killed by same bolt while working in field; two mules also killed.
Tell City, Ind.	20						500	500	Wind	Buildings and trees damaged.
Philadelphia, Bucks, and Chester Counties, Pa.	21	12:30-1:30 a.m.					45,000		Electrical and rain	Lightning struck and fired one of the largest and oldest barns near Lenape, causing $25,000 loss. Another barn east of Yardley struck and fired by lightning, with loss of $20,000. Lightning struck power lines, putting a large area of south Philadelphia in darkness, and disabled two trolley cars for 25 minutes. Heavy rains caused local flooding when storm sewers unable to carry off water.
Marshall, Harrison County, Tex.	21	11:30a.m.			4	1	Negligible		Hail and electrical	Hail light. Lightning struck tree under which seven persons had taken refuge.
Tucson and vicinity, Ariz.	21	2:45-8:50 p.m.	†60	60			*2,500	*	Wind, rain, and electrical	A number of roofs damaged by high winds; several trees knocked down. Lightning knocked out a number of power lines. One house damaged by lightning. Several washouts on county roads. Damage by wind $500, rain $1000, lightning $1000; included in total.
Martinsville, Va.	21	3 p.m.			2	1			Wind and rain	Fatalities occurred when portion of walls and roof of a condemned building collapsed during storm.
Patagonia (near), Ariz.	21	5 p.m.				1			Electrical	Man injured but not seriously, when lightning struck nearby tree. Only a few scattered clouds overhead at time, but heavy storm to south.
Phoenix and vicinity, Ariz.	21	7:20-8:15 p.m.	†10	15	1		*38,000	*	Wind and electrical	Wind damaged roofs, and blew down several trees; also blew down a brick wall under construction, crushing and killing one woman when wall collapsed on her home. Several lightning strikes disrupted power and telephone services to portions of city; burned two palm trees. Several houses, garages, sheds, and autos damaged by wind or falling trees. Damage by wind $28,000, lightning $10,000; included in total. Thunderstorm formed southwest of Phoenix and rapidly crossed city in east-northeastward direction.
Silverton, Briscoe County, Tex.	21	8 p.m.							Wind and hail	
Milligan (near), Nebr.	21	8-8:45 p.m.	†2	10			Minor	20,000	Hail	

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Staplehurst (southward and westward), Nebr.	21	8:30 p.m.	†5	11			Minor	See remarks	Hail and wind	Several thousand dollars damage to crops.
Tucson and vicinity, Ariz.	22	11:45a.m.-5:30p.m.	†70	70			$15,000	$6,000	Wind, hail rain, and electrical	Several thunderstorms caused from 2 to 3 inches of rain over northern portions of Tucson and vicinity. Several residential blocks inundated by water which reached 3 feet deep in places. Roads washed out, lawns and gardens damaged, and a number of trees and poles blown down. Gusts to 55 m.p.h. at University of Arizona. Several cotton fields northwest of Tucson damaged by hail. Lightning knocked out many power lines and transformers. Damage by wind $1200, by hail $6000, by rain $13,500, by lightning $300; included in total.
Danville, Va.	22	3:30 p.m.							Rain	More than 1 inch of rain fell in 15 minutes; flooded street-drainage system sending water into basements of a number of buildings and into waiting room of Southern Railway. About 1,000 telephones out of order.
Carroll County (central portion), Mo.	22	6 p.m.	†5	10				3,000	Wind	Damage mostly to oats.
Finney County, Kans.	22	Afternoon							Hail and wind	A hailstorm in northeastern Finney County accompanied by high wind caused some local damage up to 50 percent.
Warren (4 miles northwest of), Ind.	22	6 p.m.	†1/2	3/4			2,000	1,000	Tornadic and hail	Barn unroofed. Largest hail 2 1/2 inches thick. Some hail damage to corn and wheat. Some indications storm may have been a "near tornado". Moved northeastward.
Nuckolls County (northwestern portion), Nebr.	22	6-9 p.m.		3			Some	See remarks	Hail and wind	Wheat damaged 15 to 75 percent. Framework for new barn destroyed.
Royal (near), Nebr.	22	7 p.m.	†4	8				25,000	Hail	
South Dakota, northeastern portion	22	7:30 p.m.	†4	50			50,000		Wind and hail	From northwest Day County eastward and northeastward into Roberts County. Hail size of hens' eggs; occasionally size of baseballs. Winds described as laying trees and debris crosswise at points right and left of path of storm. Damaged crops and livestock; 25 percent loss of small grain; much poultry and some pigs killed. Barns, small buildings, windmills, and haystacks damaged.
Stapleton(5 miles west of), Nebr.	22	9 p.m.			0	0	Minor		Tornado	Few outbuildings upset.
Ottertail, Wadena and Todd Counties, Minn.	22	9:30 p.m.					3,000		Thunder-squalls	Some outbuildings demolished; homes and barns damaged; trees uprooted or branches broken off; some growing crops lodged.
Rock, Mich.	23	Evening	†1/2	3			15,000		Wind and rain	Gale winds blew down barns, telephone and power lines, and trees.
**	**									
Lake Michigan	23-24	Night			58		800,000		Electrical, wind, and rain	Airliner went down in Lake Michigan with 58 aboard. Weather believed at least partial cause of accident.
Hesperia, Mich.	24	Early a.m.			1				do	Lightning followed electrical conduit into bedroom, killing man.
Oxford County, Maine	24	1-9 p.m.							Thunder-storm	In Rumford, Maine, 3.47 inches of rain in 8 hours.
Berkshire County, Mass.	24	5-6 p.m.					1,000		Electrical	House damaged by lightning in Stockbridge, Mass.
Fosterdale, N.Y.	24	Afternoon					1,500		do	Six head of cattle killed in pasture by lightning.
Indianapolis, Ind.	24	10 p.m.				1	1,000		Wind and electrical	Few trees and wires downed. Lightning struck apartment building and set it on fire.

**For additional storms this date see Wisconsin's report on last page of this table.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Tyler, Ritchie, Doddridge, Harrison, Lewis, Gilmer, Braxton, Webster, Upshur, Barbour, and Randolph Counties, W. Va.	24-25	6 p.m.-2 a.m.			31	26	*$10,000,000	*	Rain and flash floods	Excessive rains from thunderstorms caused flash floods. Unofficial measurements of up to 14 inches. About 1,292 homes damaged and 123 homes destroyed. Heavy damage to crops, farm buildings, fences, livestock, roads, bridges, railroad tracks, and public utilities.
Mahnomen and Clearwater Counties, Minn.	24-25	P.m.-a.m.					60,000	$10,000	Rain and flood	Excessively heavy rains accompanying severe thunderstorm flooded basements, streets, roads, highways, and farm lands. Culverts, bridges, and railroad grades washed out; growing crops washed out or drowned. Clearwater River overflowed its banks. An unofficial measurement of 7.39 inches of rain in about 14 hours at Bagley.
Lusk, Niobrara County, Wyo.	25	4 a.m.-10 p.m.						5,000	Wind	Wheat, oats, barley, and corn partially recovered from effects of wind. Small grain damaged by drifting sand.
Sedgwick County, Kans.	25	6:45 p.m.	†6	8	0	0	Small		Tornadoes and wind	Small vortex funnel observed. Considerable straight high wind. Tornado came to ground only once, doing minor damage to small buildings at Maize, about 12 miles northwest of Wichita. Storm path extended from south of Colwich to 1 mile east of Maize, following an east-southeastward direction.
**	**									
Graham, Ellis, Russell, Ellsworth, and Barton Counties, Kans.	25	9-11 p.m.			0	0	150,000	100,000	Wind, tornado, and hail	Storm began in Graham County, where wind reached 100 m.p.h.; passed southeastward through Ellis and Russell Counties, where most damage occurred and disappeared in Barton and Ellsworth Counties. A small tornado occurred 15 miles northeast of Hill City, where a few farm buildings and a grain elevator were damaged. Many power and telephone lines blown down and roofs and small buildings damaged by high wind. A truck loaded with cement blown off highway near Hays. Hail in scattered localities damaged growing crops.
**	**									
Minnesota, extreme northern counties	25-26						150,000		Wind	Occasional gusts of wind exceeding 55 m.p.h. caused much minor damage to property over entire State. Storm most severe in extreme northern bordering counties where a number of barns, outbuildings, houses, lake cottages, and airplanes on ground were damaged. Poles and wires down. Trees uprooted or branches broken off. The unusually high waters of Rainy Lake were driven against south and west shores, causing much damage to structures and installations. Some damage to growing crops.
Meadville and other portions of Crawford County, Pa.	26	2:30-6p.m.				3			Electrical, hail, and wind	Strong winds attended thunderstorms, blowing down shade and fruit trees from about Cambridge Springs to near Titusville. A barn near Blooming Valley torn apart; several roofs blown off; falling trees and television antenna felled power lines serving 2,000 homes. Some hail fell with this first series of storms. Hailstones reported up to 5 1/2 inches in diameter and weighing 13 ounces fell in Meadville area, with other sections reporting stones size of pullet eggs. Windows broken in over one-third of Meadville's homes. Two-thousand panes broken in greenhouses at a loss of $6,000, and 200 large panes broken at Sewage plant. A Blooming Valley farmer picked a bushel basket of stones 8.5 inches in circumference. When they landed, they bounced 10 feet into the air without breaking. A stone 5 inches around weighed a half pound. Two persons injured when hit by hailstones and another injured by falling tree limbs. Hailstones 4 inches in diameter common, causing much property and crop damage. Lightning struck and burned a barn near Cambridge Springs, with damage estimated at $20,000. Another barn near Millers Station struck with only partial loss. Lightning smashed a 70-foot television tower and wrecked television set with estimated $1,000 loss.
Fernandina, Fla.	26	4:10 p.m.					Minor	Minor	Wind	Damage to power lines from falling limbs. North winds estimated 55 to 60 m.p.h., with gusts to 65 m.p.h.
St. Augustine, Fla.	26	5-6 p.m.					1,000		Thunderstorm	Neon signs, plate glass windows, and billboards damaged by winds estimated at 45 m.p.h. Electric power interrupted.
Major County, Okla.	26	7:15 p.m.	†4	7			Considerable	Considerable	Wind and hail	Orienta and Cleo Springs area.

**For additional storms this date see Wisconsin's report on last page of this table.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Valley City, N. Dak.	26	Evening				3			Rain	More than 2 inches of rain in less than an hour flooded streets and basements, causing damage to merchandise stocks and business places in basements. Flooding water washed sections of a paved road, bridges, and railroad north of City. Three youths injured when their car dropped into a washout. A barber had to break a window to reach safety when his basement shop was flooded.
Sherman County, Nebr.	26		†3-7	20			Some	$85,000	Hail and wind	Damage spotted. A few buildings damaged; also, haystacks untopped.
Cheboygan, Mich.	26						$5,000		Wind, rain and hail	Hail up to 1 1/2 inches in diameter damaged property, such as parked airplanes.
L'Anse, Mich.	26						1,000		Electrical	Lightning struck barn.
Scobey, Mont.	27	3 p.m.	†1 1/2-2	7					Hail	One reported loss of 50 percent of wheat crop.
Northern Worchester and Middlesex Counties, Mass.	27	3-5 p.m.					Minor	Minor	Hail and wind-squalls	Local damage.
Windham County, Vt.	27	5:30-6:30 a.m.					Minor	Minor	Hail	Hail near Townshend and Wardsboro.
Morris (vicinity of), Minn.	27	4:30 p.m.	†1 1/2	5				10,000	do	Heavy hail accompanied severe thunderstorm.
East Hawley, Franklin County, Mass.	27	Afternoon							Electrical	Three connecting barns struck by lightning and destroyed by resulting fire. Barns contained only small amount of hay and farm equipment.
Dundy County, Nebr.	27	5 p.m.	†1	4				5,000	Hail	Stones size of marbles.
Garfield County, Okla.	27	5:10-5:45 p.m.	†1 1/2	3		1	500,000		Wind, hail and rain	Storm struck east half of Enid. About 5,000 claims for insurance of which about 90 percent were for losses to roofs, windows, and signs; about 10 percent to automobiles. Hail size of golf balls. About 80 percent of loss by hail, 15 percent by rain, and 5 percent by wind. Rainfall 3.32 inches. Injury was by hail.
Wichita County, Kans.	27	8 p.m.	†6	12				8,000	Hail	Hail occurred in western and northwestern parts of county with stones measuring from 1/4 inch to 1 inch in diameter. Storm moved from west.
Ravenna (near), Nebr.	27	9 p.m.	†10	35			Considerable	250,000	Hail and wind	Church demolished; many buildings damaged by breaking trees; haystacks scattered. Hailstones size of marbles, so wind increased damage.
Sherman County, Nebr.	27	9-9:10p.m.	†1	20			Small	40,000	Hail	A few old and flimsy buildings overturned.
Russell County, Kans.	27	10-11 p.m.					100,000	Minor	Wind	A wind of 75 to 80 m.p.h. hit Russell and vicinity and lasted for about an hour. Little damage other than in Russell. Roofs, chimneys, plate glass windows, oil derricks, and electric and telephone lines suffered from hurricane force winds. Storm came from northwest.
Warrensburg (near), Mo.	27	During night							Electrical	Two barns destroyed by fire.
Dickinson County, Kans.	28	1 a.m.					3,000		do	Several buildings struck in Herington and burned to ground.
Cherokee County, Kans.	28	3:30-4:15 a.m.	†20	75			600	10,000	Wind	Many trees uprooted; telephone and power lines damaged by falling limbs; a few roofs and chimneys damaged; and most of oats and remaining wheat blown flat. Telephone and power service not restored completely for 24 to 36 hours. Storm moved southeastward.
**	**									
Clark County, Kans.	28	Afternoon							Hail	Damage extended from 5 miles west to 1 mile north of Ashland. Roofs, windows, vegetation, and paint on houses damaged. Hail 5 inches deep on level and 4 1/2 feet in low places. Stones small.
Montgomery County, Kans.	28	1 p.m.	440	1			$3,000	$1,000	Wind	Dark cloud, but without funnel, produced high winds, causing damage to southwest edge of Independence.

**For additional storms this date see Wisconsin's report on last page of this table.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Wake, Nash, Edgecombe, Wilson, and Pitt Counties, N.C.	29	9-11 a.m.	†3	45			Slight	Thousands	Wind, hail and rain	Hail cut principle swath from Zebulon in Wake County eastward to Pitt County. Crops a total loss on several hundred farms.
Columbia and vicinity, S.C.	29	1-4 p.m.					15,000		Electrical	A dwelling in Columbia valued at $2,800 destroyed by lightning. Electrical equipment damaged by lightning in Columbia, damage estimated at about $7,200. In West Columbia, winds caused about $5,000 damage to trees and warehouse; temporary interruptions to power and telephone service.
West Palm Beach area, Fla.	29	1:50-4:12 p.m.						Minor	Thunder squall	Winds at CAA Control Tower reached 85 m.p.h. in 10-second gust. Two airplanes slightly damaged, light plane being nosed over. Two windows blown in at courthouse, and two in a residence. Palm trees uprooted in various sections of city. One automobile damaged by a falling light pole standard. Three barges loaded with sand blown off-course and ran aground on sand bar. Telephone and electric service interrupted.
Columbia and Union Counties, Fla.	29							500	Hail	Principal damage to tobacco plants. Storm occurred in west and southwest Columbia County and near Dukes in Union County.
Joplin, Mont.	30	1:30-2p.m.	†3-7	25				175,000	do	One-hundred percent loss to about 5,000 acres of wheat and barley; about 50 percent loss in some scattered sections.
Lothair (near), Mont.	30	1:30-2p.m.							do	Hailstones egg-size and larger caused considerable property damage.
Montgomery County, Kans.	30	1:40 p.m.	880	2					Wind	Principal damage south of Independence, in Country Club area. A terrific wind gust, lasting only a few minutes, blew in large glass panes of club house. Several large trees uprooted, power lines broken, and small buildings toppled over. Storm moved southeastward and ceased just as quickly as it began. No evidence of a tornado.
Sunburst, Mont.	30	3:15-3:30 p.m.							Hail	Hail to 1 inch in diameter broke many windows and damaged crops on at least seven farms.
Galata, Mont.	30	4 p.m.	†3				800	250,000	Hail and wind	Heavy hail 1 inch in diameter caused severe grain damage. Wind caused light property damage.
Dunkirk (14 miles northeast of), Mont.	30	4-4:20 p.m.	1/2-8	30					Hail	Hailstones of golf-ball size damaged crops, killed chickens, and broke windows.
Kenilworth, Mont.	30	4-4:30 p.m.	880	6					do	20 to 100 percent loss to crops in scattered areas.
Chester, Mont.	30	4:30-5 p.m.	†10	40-50			10,000	90,000	Hail and wind	Hail as large as marbles caused varying degree of damage to 10,000 to 20,000 acres of wheat and barley.
Winifred, Mont.	30	6:30-7 p.m.	†1	12-15				20,000	Hail	Heavy hail caused severe local crop damage and broke a few windows.
Barber, Mont.	30								do	Damaged crops considerably.
Wabash, Ind.	30							1,000	do	Corn damaged.

See footnotes at end of table.

SEVERE STORMS

(RECEIVED TOO LATE TO BE PLACED IN CHRONOLOGICAL ORDER)

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
La Crosse, Wis.	9	1 a.m.					$25,000		Thunder-squall	Several buildings damaged and many trees uprooted. Electric and telephone service disrupted in one section of city.
Monroe County, Wis.	9	2 a.m.							do	Trees uprooted and electric and telephone service disrupted in several parts of county. Toll lines from Sparta to Norwalk and Cataract down in several places. No estimate of damage.
Wisconsin, southern portion	12-13	Night					150,000	150,000	Electrical, rain and wind	Rainfall excessively heavy in places. Burlington reported over 5 inches of precipitation. Basements flooded in Burlington, Racine, Madison, and other communities. Power lines down near Lake Geneva and in Madison. 2600 phones out due to lightning and falling trees. 900 phones out in Milwaukee because of wet cables. One house burned and several damaged when struck by lightning.
Marinette and vicinity, Wis.	23	Night					10,000		Electrical	Lightning damaged power lines. About 75 telephones put out of order.
Fond du Lac and vicinity, Wis.	23	7:30 p.m.					30,000		do	Telephone and electric service disrupted by falling tree limbs in Fond du Lac. Barn struck by lightning and burned near Rosendale. Barn containing farm machinery struck by lightning and burned near Fond du Lac. Many trees down in county.
Wisconsin, southern portion	23	Night			1	3	100,000		Thunder-storm	Many trees and tree limbs blown down, disrupting electric and telephone service. Man killed at Batavia (Sheboygan County) by falling tree. Camp Haven (Sheboygan County) suffered about $10,000 damage.
Ladysmith, Wis.	25	7:20 p.m.	Narrow	Short	0	0	50,000	0	Tornado	Factory building unroofed; several buildings damaged quite badly.
Prentice (near), Wis.	25	8:20 p.m.	Narrow	1	0	0	54,000	0	do	Ten barns demolished and wreckage scattered over wide area.
Rhinelander (near), Wis.	25	9 p.m.	500	12	2	50	500,000	0	do	Fifteen homes destroyed and 25 homes partly demolished southwest and northeast of Rhinelander. Two persons drowned because of high wind. Many trees uprooted. One mile of high voltage transmission line down.
Unity (near), Wis.	25	Night	Narrow	Short	1	0	25,000	0	do	Three barns demolished.
Berlin, Wis.	25	11:30 p.m.	300	1	0	0	100,000	0	do	One cement block building demolished; church steeple blown down. Many trees downed. Piece of 2" x 4" rammed through a 6-ply tire.
Dalton (near), Wis.	28	Noon						2,000	Hail	Several acres of peas damaged.

† Miles instead of yards.
* Crop damage included with other property damage.

PRELIMINARY TOTALS BY STORM TYPES FOR JUNE 1950

Type	Deaths	Injuries	Damage
Tornado	6	74	$ 2,570,950
Wind	75	9	2,740,125
Hail		4	5,988,450
Rain and flash floods	37	31	21,236,000
Electrical	14	15	527,825
Waterspout			1,500
Blizzard	1		
Total	133	133	$ 33,064,850

RIVER STAGES AND FLOODS
JUNE 1950

Several severe flash floods occurred during June in the Missouri and Ohio Basins. One of the worst of these occurred in the Ohio Basin in central West Virginia. It involved an area of nine counties. Record stages were reached on the West Fork of the Monongahela River. At least 30 persons were drowned and the property damage was heavy.

The severe floods in the extreme Upper Mississippi Basin and the Red River of the North that began in April receded to within their banks during June. The flood in the Upper Mississippi was the highest and longest of record while the one along the Red River of the North was generally the highest since 1897.

Severe flooding occurred along the Kootenai in the upper Columbia Basin at Bonners Ferry, Idaho.

UPPER MISSISSIPPI BASIN.--The flooding in the headwaters of the Mississippi River from April to June, in connection with the spring break-up was the greatest of record. This severe flood was brought on by the abnormally cold weather that occurred in March and April and to the heavy snowfall in April. Heavy rains during May contributed an increased discharge to the swollen main stem. Table 1 shows the departure from normal of the mean temperature and the total snowfall in the extreme Upper Mississippi Basin during March and April.

Table 1.--Departure from Normal, Temperature and Snowfall. (Based on the averages for 10 stations.)

Month	Mean Temperature	Departure	Snowfall	Departure
March	18.0°	-5.2°	12.9 in.	+4.8 in.
April	30.4°	-10.0°	29.6 in.	+26.3 in.

The important features of this flood were the record breaking stages, the duration of the flood and the heavy property damage that resulted. At Fort Ripley, Minn., the average duration of the 11 previous floods since 1907 was 7 days. The duration of this year's flood was practically 47 days. Heavy damages resulted from the severe flooding. Approximately 200,000 acres were inundated of which 26,000 were crop lands. (See the April and May issues for a discussion of the flooding during April and May.)

Excessive rains in the reach of the Mississippi between Hastings, Minn., and La Crosse, Wis., on the night of the 12-13th caused a sharp rise in the smaller tributaries in the area. The Zumbro River rose 16.1 feet during the night at Theilman, Minn. The Whitewater River rose to a crest of nearly 4 feet above bank-full stage at Beaver, Minn., and the La Crosse River, to slightly over 1 foot above flood stage at West Salem, Wis. The streams fell rapidly after cresting so the damage was considerably smaller than it would have been had the area been under water for a longer period.

A flash rise occurred in the Pecatonica River at Freeport, Ill., due to heavy rain from the 12th to the 14th. The rainfall averaged 1.3 inches in the lower sections and nearly 3 inches in the headwaters of the Rock River Basin. No damage resulted from the slight overflow. Additional rains during the following 5 days caused the Rock River to rise to nearly 1 foot above flood stage at Moline, Ill.

Heavy rains over the Raccoon and lower Des Moines River Basins in Iowa on the 17th and 18th caused these streams to exceed flood stage within 24 hours after the rain ended. Precipitation in the upper Raccoon Basin averaged slightly over 4 inches with an unofficial amount of 5.5 inches at Early in Sac County. In the lower Raccoon Valley the rainfall averaged about 2.25 inches and in the Des Moines Valley about 1.25 inches. The greatest overflow was on the lower Raccoon River from Van Meter downstream to the junction at the Des Moines River. Some damage resulted to growing crops.

Light flooding occurred over the Illinois River Basin from the 21st through the end of the month due to heavy rain (2.2 inches) during the 24-hour period ending on the 19th.

MISSOURI BASIN.--A flash flood occurred in the Mussellshell drainage at Harlowton, Mont., from the heavy rain on Antelope Coulee north of town on the 17th. Heavy damage and one death resulted from the flash flood. Thirty homes were damaged as the crest moved down the Coulee through the lower part of this central Montana town. Minor flooding occurred along the Sun River near the towns of Sun River and Fort Shaw, Mont., for several days near the middle of the month. The damage was very slight.

A severe flash flood occurred in the Madison, Nebr., area due to torrential rains of 3 to 6 inches over the central and upper portions of Union Creek drainage on the night of the 1st and the 2d. About 90 residences and business places were flooded in the northern section of Madison. It was the highest flood in the history of the town. Considerable farm and pasture land was flooded along Union Creek and the Elkhorn River as the flood waters progressed downstream. Most of the damage in the open country was to growing crops, bridges and fences. Local overflow occurred on the Elkhorn River at West Point, Nebr., due to heavy rains (2 inches) in the vicinity of West Point, Beemer, and Wisner on the 2d.

Heavy thundershowers on the 1st caused flooding along Beaver Creek in the vicinity of Petersburg and St. Edward, Nebr. An undetermined number of families were forced to leave their homes. Crop losses and property damage in Beaver Valley were moderate.

Minor flooding occurred along the Marais des Cygnes River at Quenemo, Kans., on the 3d and 4th due to heavy rain during the night of the 2d. The rainfall averaged 2.25 inches above Ottawa. Downstream the precipitation was slightly less than 1.5 inches. Damages were light.

The James River continued in flood from Apr. 15 to June 25, a period of almost 2-1/2 months. The flood in the South Dakota sector was comparable to the flood of April 1943. The greatest damage resulted from flooded lowlands that could not be cultivated during the 1950 growing season. Heavy damage occurred to hay land along the James Valley. Some damage occurred to roads.

Moderate flooding resulted along the Floyd River from the heavy thundershowers during the night of the 17th and 18th. The heaviest rainfall amounts occurred over the central Floyd Valley in Sioux and Plymouth Counties. Three to 5 inches of rain occurred in a few hours along a line from Hawarden to Remsen, Iowa. The rate of fall was such that a flash flood developed on the Floyd from a few miles below Alton, Iowa, to the mouth of the stream. Moderate damages resulted to roads and crops along the Floyd. This same storm caused minor flooding along the Big Sioux River at Akron, Iowa.

OHIO BASIN.--A rapid rise occurred in the West Fork of the Monongahela River at Weston, W. Va., due to the heavy rain (2 inches) over the headwaters on the 3d. Flood stage was exceeded by only 0.5 foot. No damage resulted.

Heavy rains (3.5 inches) occurred again over this drainage area on the 24th causing flooding along the main stem of the West Fork and severe flash floods within the basin. At Weston, W. Va., the river rose 22.5 feet in less than 12 hours, cresting at a stage of 25.5 feet on the 25th, the highest

stage of record. It exceeded the previous highest stage of record (April 1939) by more than 3 feet. At Clarksburg, W. Va., the river rose 10 feet to a crest of 11.9 feet on the 26th, exceeding the previous record stage of 8.25 feet of Dec. 26, 1944, by more than 3 feet. At Hall, W. Va., the Buckhannon River reached flood stage within 4 hours after the rain began. At Philippi, W. Va., the Tygart reached flood stage in about 10 hours. Flood damages were severe. Whole towns in the flood area were isolated. A National Guard official estimated that 90 percent of Berea, W. Va., a village of about 16 homes in Ritchie County, had been swept away. State Police reported 200 homes destroyed at West Union alone. Very great damage resulted to B & O Railroad tracks through the flood area between Salem and Cairo. At least 30 persons were drowned in the flood area that covered 9 central West Virginia counties.

Two separate periods of flooding occurred on the Little Kanawha at Glenville, W. Va., during the month. The first on June 4 and the second on the 25th and 26th. The flooding during the first period was light and was due to rainfall averaging over 2 inches in the upper basin. A near record stage occurred during the second period. The crest stage of 31.1 feet on the 25th was 2.5 feet lower than the previous record stage of 33.6 feet recorded on Nov. 16, 1926, and slightly higher than the stage of 30.7 feet recorded during the disastrous flash flood of Aug. 5, 1943.

Light flooding occurred on the Licking River at Falmouth, Ky., on the 21st due to heavy rains (5 inches) over the upper basin from the 19th to the 21st. Near bank-full stages occurred at Cynthiana and Farmers, Ky. Damage from the flood was negligible.

Near record stages for the month of June occurred over the Salt River Basin in Kentucky at Boston, Taylorsville and Shepherdsville due to the heavy local showers from the 19th to the 21st. Some damage resulted to corn crops from the overflow in low areas.

Some minor flooding occurred along the Green River from the 22d to the 26th due to heavy showers (over 2.25 inches) on the 20th and 21st. No damages resulted from the flooding.

Flooding in the Wabash and White River systems during the month was not serious or extensive. Flooding on the White at Anderson, Ind., on the 4th was due to heavy showers on the 2d and 3d which were particularly heavy in the central and southern portions of Indiana. A heavy rain at Indianapolis, Ind., at this time established a new record of 3.45 inches for the greatest amount of rainfall ever recorded during a 24-hour period for the month of June. Flooding along other points in the White and Wabash Rivers was due to frequent heavy rains between the 9th and 20th. Some damage resulted to growing corn along low-lying bottomlands.

Minor flooding occurred along Chickamauga Creek, at Chattanooga, Tenn., on the 4th and 5th and along First Creek at Knoxville, Tenn., on the 21st due to heavy local rains. No damages resulted from either flood.

WHITE AND ARKANSAS BASINS.--The flooding in the White Basin during June was due principally to continuing high stages from the previous month. All crests during the month were due to secondary rises resulting from moderate to heavy local showers on the 2d and 3d. A flash flood occurred in the vicinity of Batesville, Ark., on the 3d due to a sudden downpour totalling 5.44 inches in the vicinity of Mountain View. The river at Batesville rose from a stage of 14.1 feet at 7 a.m. on the 3d to a crest of 25.3 feet by 9 p.m.; at 7 a.m. on the 4th it had fallen to a stage of 21.5 feet. Some damage resulted to county roads in the vicinity of Mountain View.

Minor flooding occurred in the Arkansas Basin along the Caney and upper Neosho Rivers early in the month due to heavy rainfall during the first 3 days of the month. Some damage resulted from the flooding.

ATCHAFALAYA BASIN.--The Atchafalaya River continued in flood at Atchafalaya, La., to the 20th. At Morgan City, La., the stream was intermittently in flood from the 1st to the 6th and again on the 20th due to wind and tide effects.

WEST GULF OF MEXICO DRAINAGE.--Heavy rains during the last few days of May caused the Sabine River to rise to flood stage at Mineola and Bon Wier, Tex., by May 31. The Calcasieu River was rising moderately at Kinder, La., and the Nezpique at Basile, La., on the 1st of June. Additional heavy rain during the first 3 days of the month caused these streams to overflow moderately at all points except in the upper Sabine where the rain was light. At Milam, Tex., in the lower Sabine Basin 7.75 inches was recorded during that 3-day period. Damages from the flooding were confined chiefly to roads.

Light flooding occurred on the East Fork of Trinity River near Rockwall, Tex., on the 2d and from the 12th to the 14th due to heavy local rains over the headwaters. No damage of consequence resulted.

The Trinity River was flooding at Liberty, Tex., in the beginning of the month due to excessive rains in May. Additional excessive rains occurred on the 2d, 3d and 6th over the Trinity and Neches Basins. Flooding along these streams was mostly light. There was some loss of income due to the suspension of activities in the South Liberty oil field.

Heavy rains during the first 3 days of June caused flooding along the Guadalupe River at Gonzales and Victoria, Tex. Damage was rather small and was confined mostly to pastures and growing crops.

Some flooding occurred along the Pecos River near Santa Rosa, N. Mex., on the 19th due to heavy local rains washing out several diversion dams.

COLUMBIA BASIN.--There was a heavy accumulation of snow in the headwaters of the Columbia Basin during the 1949-50 season. At Spokane, Wash., a total of 90 inches of snow was observed which was 54 inches more than the average seasonal snowfall of 36 inches. This was the heaviest snowfall that has been observed at this point since records began nearly 70 years ago. In the Upper Columbia Snow Laboratory in Glacier Park, Mont., it was the heaviest accumulation of snow since records began in 1945. The total snowfall during the present season was 416 inches as compared to 330 inches during the 1947-48 season when disastrous floods occurred in the Columbia Basin. Similar reports of much above average snowfall was reported in the Kootenai and Clark Basins.

River flows were relatively low all spring due to the below normal temperatures. It was not until the middle of June that the main runoff began. The Kootenai River rose rapidly to above flood stage between the 12th and 17th. The flooding along this stream was severe at Bonners Ferry, Idaho. Thirty-six hundred acres of fertile crop lands were inundated. The damage from the overflows was heavy but in comparison with the flood of 1948 when the entire valley of 30,000 acres was flooded, it was considerably less.

Heavy rains during the first week caused local flooding on the Port Neuf, near Pocatello, Idaho. No damage of consequence resulted. Several flash floods occurred in northern Idaho on the lower Clearwater drainage due to recurrent heavy showers and thunderstorms causing light to moderate damages.

The flooding in the Lower Columbia and in the Willamette below Oregon City, Oreg., was a continuation of the flooding which began at Vancouver, Wash., on May 19 and at Portland, Oreg., on May 28. These streams continued rising slowly except for minor fluctuations on the 2d and 13th until reaching their crests on the 26th. The rivers at both stations were several feet above flood at the close of the month but falling slowly.

FLOOD STAGE REPORT

(All dates in June unless otherwise specified)

River and station	Flood stage	Above flood stages -dates From–	To–	Crest* Stage	Date
HUDSON BAY DRAINAGE	Ft.			Ft.	
d of North: Breckenridge, Minn.	**10	May 8	May 11	11.9	May 10
ATLANTIC SLOPE DRAINAGE					
anoke:					
Altavista, Va.	18	May 31	1	25.8	1
Randolph, Va.	21	May 31	2	25.7	2
Weldon, N.C.	31	3	4	32.1	4
Williamston, N.C.	10	5	11	10.7	8-9
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
abro: Theilman, Minn.	35	12	13	42.1	12-13
itewater: Beaver, Minn.	7	13	14	10.8	13
Crosse: West Salem, Wis.	5	13	15	6.2	14
catonica: Freeport, Ill.	10	16	16	10.1	16
ck: Moline, Ill.	10	17	24	10.8	20
unk: Augusta, Iowa	15	19	22	19.3	20
ccoon: Van Meter, Iowa	13	18	21	16.1	20
		24	24	14.1	24
s Moines:					
Tracy, Iowa	14	19	23	14.8	20
Eddyville, Iowa	15	19	25	17.5	20
Ottumwa, Iowa	9	19	24	10.8	20
x: Wayland, Mo.	15	16	21	17.8	16
				16.7	20
linois:					
Havana, Ill.	14	21	†	15.5	22
Beardstown, Ill.	14	21	†	16.5	25
ramec: Pacific, Mo.	11	1	1	11.7	1
ssissippi:					
Aitkin, Minn.	12	Apr. 19	15	19.5	May 21
Fort Ripley, Minn.	10	Apr. 19	May 1	12.4	Apr. 20
		May 4	6	13.3	May 22
Minneapolis, Minn.	16	May 10	May 11	16.2	May 10
Keokuk, Iowa	12	19	24	15.5	20
Gregory Landing, Mo.	12	19	24	16.2	20
Quincy, Ill.	14	20	25	19.0	21
Hannibal, Mo.	13	Apr. 25	1	16.3	Apr.27-28
				15.9	May11-12
		17	27	19.2	21-22
Louisiana, Mo.	14	20	25	17.4	22
Grafton, Ill.	18	23	26	19.0	25
Missouri Basin					
mes:					
Ashton, S. Dak.	15	May 13	15	19.1	May 19
				18.8	May 30
Huron, S. Dak.	11	May 16	18	14.2	May 25
g Sioux: Akron, Iowa	12	18	18	13.6	18
oyd:					
Merrill, Iowa	12	18	19	14.5	18
James, Iowa	16	18	20	19.2	19
khorn: West Point, Nebr.	12	3	4	13.1	4
ranger Creek: Tonganoxie, Kans.	23	3	3	23.7	3
ldon: Mercer, Mo.	20	19	19	22.1	19
and:					
Chillicothe, Mo.	18	15	16	18.5	15
		19	21	25.4	20
Sumner, Mo.	25	16	22	30.0	20
Brunswick, Mo.	12	21	23	14.0	22
ariton:					
Novinger, Mo.	20	15	27	26.7	20
Keytesville, Mo.	20	15	27	22.4	23
mine: Clifton City, Mo.	15	3	4	24.0	3
ackwater: Blue Lick, Mo.	25	3	6	27.6	5
rais des Cygnes: Quenemo, Kans.	30	3	4	32.6	4
sconade: Jerome, Mo.	15	10	10	18.4	10

River and station	Flood stage	Above flood stages -dates From–	To–	Crest* Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft.	
Ohio Basin					
Middle Fork: Midvale, W. Va.	11	25	25	14.3	25
Buckhannon: Hall, W. Va.	12	25	25	13.0	25
Tygart:					
Daily, W. Va.	9	25	26	11.4	25
Philippi, W. Va.	17	25	26	19.7	25
West Fork:					
Weston, W. Va.	17	4	4	17.5	4
		25	25	25.5	25
Clarksburg, W. Va.	7	25	26	11.9	26
Little Kanawha: Glenville, W.Va.	23	4	4	25.5	4
		25	26	31.1	25
Licking: Falmouth, Ky.	28	20	22	30.3	21
Rough: Dundee, Ky.	25	5	8	26.3	7
Green:					
Munfordville, Ky.	28	22	24	33.8	24
Lock No. 4, Woodbury, Ky.	33	24	26	34.3	25
West Fork:					
Anderson, Ind.	10	4	4	11.0	4
Elliston, Ind.	18	22	22	18.1	22
Edwardsport, Ind.	12	20	22	16.1	22
Wabash:					
La Fayette, Ind.	11	25	25	11.3	25
Montezuma, Ind.	--	--	--	17.1	27
Terre Haute, Ind.	14	20	21	14.7	21
		27	28	14.6	27-28
Hutsonville, Ill.	--	--	—	18.0	20
First Creek: Knoxville, Tenn.	5	21	21	5.3	21
South Chicamauga Creek:					
Chickamauga, Tenn.	10	4	5	10.6	4
White Basin					
Black: Black Rock, Ark.	14	May 5	18	22.7	May 16
				21.5	5
White:					
Batesville, Ark.	23	3	3	25.3	3
Augusta, Ark.	32	6	10	32.2	8
Georgetown, Ark.	21	May 14	16	28.9	May 19
				22.2	11
Des Arc., Ark.	24	9	15	24.4	12
Clarendon, Ark.	26	May 9	25	31.5	May 25
St. Charles, Ark.	25	May 12	29	29.6	May 27
Arkansas Basin					
Neosho:					
Emporia, Kans.	22	3	4	26.0	3-4
Neosho Rapids, Kans.	22	4	4	22.5	4
Atchafalaya Basin					
Atchafalaya:					
Atchafalaya, La.	25	Jan. 12	20	30.4	Mar. 5
				27.4	May 22-26
Morgan City, La.	16	1	8	7.0	3
		20	20	6.3	20
WEST GULF OF MEXICO DRAINAGE					
Calcasieu: Kinder, La.	16	4	10	21.2	5
Sabine:					
Mineola, Tex.	14	4	14	16.3	5
Logansport, La.	25	2	7	27.2	4
Milam, Tex.	35	3	13	43.5	5
Bon Wier, Tex.	17	May 31	19	23.4	8
Angelina: Horger, Tex.	30	5	7	30.7	6
Neches:					
Rockland, Tex.	22	3	9	24.6	6
Evadale, Tex.	16	3	19	19.3	10-11
East Fork: Rockwall, Tex.	10	2	2	11.4	2
		12	14	13.7	13
Trinity: Liberty, Tex.	24	May 13	10	26.1	May 24
				27.7	6

See footnotes at end of table.

FLOOD STAGE REPORT

(All dates in June unless otherwise specified)

Table 5-Continued

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
WEST GULF OF MEXICO DRAINAGE (Cont'd.)	*Ft.*			*Ft.*	
Guadalupe:					
Gonzales, Tex.	20	3	5	28.1	5
Victoria, Tex.	21	6	8	24.3	7
PACIFIC SLOPE DRAINAGE					
Columbia Basin					
Kootenai: Bonners Ferry, Idaho	31	17	26	33.9	24
Flathead:					
Columbia Falls, Mont.	13.2	13	24	16.2 *	22
Somers, Mont.	93	18	30	94.7	25
Clark Fork: St. Regis, Mont.	17	--	--	17.4	19
Pend Oreille:					
Bayview, Idaho	66	21	30	67.1	26
Priest River, Idaho	22	20	30	23.5	26
Willamette: Portland, Oreg.	18	May 28	†	24.8	26
Columbia:					
Boundary, Wash.	32	18	30	39.3	24
Vancouver, Wash.	15	19	†	25.2	26

* Provisional.
** Readings from U.S.G.S. gage.
† Continued at end of month.
‡ Flood stage or higher reached intermittently due to wind and tide effects.

RADIOSONDE DATA

Average monthly values

Table 20

JUNE 1950

Standard pressure surface (mb.)	ALBANY, N. Y. (1003 MB.)				ALBUQUERQUE, N. MEX. (835 MB.)				ATLANTA, GA. (983 MB.)				BIG SPRING, TEX. (923 MB.)				BISMARCK, N. DAK. (951 MB.)				BOISE, IDAHO (913 MB.)				BROWNSVILLE, TEX. (1012 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
URFACE	29	86	17.1	78	30	1,620	26.1	21	30	300	23.5	75	30	784	25.9	53	26	505	18.2	55	30	868	20.6	44	30	6	27.0	82
,000--	29	114			30	-6			30	145			30	70			26	63			30	69			30	110	26.4	81
50----	29	555	17.4	65	30	467			30	598	23.9	66	30	529			26	512			30	523			30	568	23.5	80
00----	29	1,013	14.7	64	30	957			30	1,066	20.8	65	30	1,009	25.6	52	26	973	17.1	48	30	989	20.8	38	30	1,035	21.4	68
50----	29	1,494	11.3	67	30	1,461			30	1,559	17.7	62	30	1,510	22.4	54	26	1,458	13.3	51	30	1,480	17.1	36	30	1,529	19.3	53
00----	29	1,998	8.1	60	30	1,994	24.7	20	30	2,075	14.4	57	30	2,034	18.7	55	26	1,964	9.4	54	30	1,992	12.8	42	30	2,049	16.9	44
50----	29	2,534	5.4	59	30	2,558	20.1	21	30	2,622	11.2	52	30	2,591	14.9	53	26	2,505	6.1	51	30	2,534	8.3	48	30	2,600	13.6	44
00----	29	3,089	2.5	53	30	3,142	14.8	24	30	3,190	8.0	50	30	3,165	11.7	44	26	3,058	2.6	46	30	3,096	4.0	51	30	3,175	10.6	36
50----	29	3,690	- 0.2	44	30	3,767	9.3	29	30	3,803	4.3	48	30	3,786	7.7	44	26	3,659	- 1.3	45	30	3,697	- 0.5	54	30	3,792	6.9	34
00----	29	4,323	- 3.6	38	30	4,419	3.5	34	30	4,446	0.4	48	30	4,436	3.2	41	26	4,286	- 5.3	42	30	4,329	- 4.6	49	30	4,441	2.9	34
50----	29	5,004	- 7.9	34	30	5,122	- 2.3	40	30	5,139	- 3.9	44	30	5,137	- 1.7	39	26	4,970	-10.0	42	30	5,015	- 8.9	46	30	5,143	- 0.8	30
00----	29	5,738	-12.8		30	5,865	- 8.5	47	30	5,884	- 8.4	39	30	5,887	- 6.9	35	25	5,694	-15.1	42	30	5,739	-13.8	42	30	5,896	- 5.0	
50----	29	6,538	-18.4		29	6,684	-14.4	46	30	6,702	-13.2	38	30	6,705	-12.0	31	25	6,490	-20.7	41	30	6,536	-19.5	42	30	6,721	-10.1	
00----	29	7,403	-24.5		29	7,560	-20.1		30	7,582	-19.2	40	30	7,595	-18.1	30	25	7,343	-26.9	38	29	7,390	-26.2	47	29	7,615	-16.3	
50----	29	8,360	-31.8		29	8,537	-26.6		30	8,562	-26.1		30	8,578	-25.2	34	25	8,292	-33.8		29	8,341	-33.7	46	29	8,605	-23.4	
00----	28	9,434	-39.5		29	9,630	-35.2		30	9,660	-34.2		30	9,678	-33.6		25	9,355	-41.5		29	9,403	-42.0		29	9,712	-31.9	
50----	28	10,655	-49.1		28	10,875	-44.8		30	10,910	-44.1		30	10,932	-43.4		24	10,584	-49.3		28	10,603	-49.8		28	10,973	-41.7	
00----	25	12,088	-58.0		28	12,335	-54.7		29	12,370	-55.6		30	12,396	-55.2		23	12,026	-54.6		27	12,035	-53.7		26	12,450	-53.7	
75----	25	12,925	-59.4		27	13,181	-59.8		28	13,211	-61.1		28	13,237	-61.3		23	12,880	-54.4		27	12,892	-53.7		25	13,296	-60.3	
50----	24	13,889	-60.0		27	14,132	-64.4		27	14,157	-65.6		21	14,183	-68.1		21	13,869	-53.6		26	13,879	-53.5		22	14,243	-67.0	
25----	22	15,036	-60.2		18	15,260	-68.5		25	15,264	-69.4		17	15,275	-73.1		17	15,028	-55.8		21	15,054	-54.6		15	15,335	-72.0	
00----	15	16,440	-60.8		13	16,611	-69.1		18	16,603	-70.0		13	16,577	-72.4		13	16,444	-57.5		16	16,492	-56.2		13	16,641	-73.9	
0-----	10	17,820	-59.5		8	17,948	-65.3		13	17,953	-66.5		8	17,913	-66.6		7	17,853	-56.2		11	17,908	-56.9		7	17,968	-70.3	
0-----									9	19,728	-60.3														7	19,706	-63.0	
0-----																									5	20,844	-60.0	

Standard pressure surface (mb.)	BUFFALO, N. Y. (987 MB.)				CAMAGUEY, CUBA (1003 MB.)				CARIBOU, MAINE (988 MB.)				CHARLESTON, S. C. (1014 MB.)				CIUDAD VICTORIA,MEX. (972 MB.)				COLUMBIA, MO. (985 MB.)				DODGE CITY, KANS. (922 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
URFACE	30	221	16.8	73	22	122	23.9	91	30	191	12.7	86	30	18	24.2	85	28	335	31.1	48	30	239	22.0	75	29	792	23.1	56
,000--	30	110			22	146	23.9	90	30	85			30	144	25.1	76	28	83			30	109			29	71		
50----	30	556	17.7	59	22	602	22.3	82	30	522	13.6	71	30	601	24.0	66	28	545	28.9	51	30	563	22.4	66	29	531		
00----	30	1,011	14.9	60	22	1,065	20.7	69	30	972	11.6	67	30	1,068	21.0	67	28	1,022	24.3	57	30	1,027	19.4	67	29	1,001	22.9	53
50----	30	1,492	11.7	61	22	1,558	17.8	64	30	1,449	9.0	69	30	1,560	17.5	68	28	1,520	20.2	64	30	1,517	16.6	62	29	1,497	20.2	53
00----	30	1,997	9.0	54	22	2,075	14.5	64	30	1,949	6.0	72	30	2,076	14.0	68	28	2,040	16.0	69	30	2,032	14.4	50	28	2,019	17.6	54
50----	30	2,537	6.1	50	22	2,619	11.4	56	30	2,482	2.9	70	30	2,624	10.8	61	28	2,591	12.5	64	30	2,584	11.6	46	29	2,572	14.4	49
00----	30	3,092	3.2	45	22	3,191	8.1	50	30	3,031	- 0.3	66	30	3,191	7.6	54	28	3,163	9.2	54	30	3,149	8.1	46	29	3,147	10.3	50
50----	30	3,694	0.2	43	22	3,804	4.4	49	30	3,629	- 3.1	55	29	3,804	4.1	47	28	3,780	6.0	48	30	3,762	4.5	44	29	3,763	6.0	47
00----	30	4,327	- 3.5	40	22	4,448	0.9	43	30	4,251	- 6.3	49	29	4,444	0.0	49	28	4,427	2.0	42	30	4,404	0.4	46	29	4,410	1.6	39
50----	30	5,011	- 7.6	38	22	5,145	- 3.2	39	29	4,932	-10.5	38	29	5,141	- 4.3	47	28	5,126	- 1.8	38	30	5,099	- 4.1	39	29	5,106	- 3.6	38
00----	29	5,744	-12.1		22	5,890	- 7.7	39	29	5,655	-15.0	34	29	5,880	- 8.4	41	28	5,878	- 5.8		30	5,841	- 9.1	37	29	5,850	- 8.8	35
50----	29	6,544	-17.7		22	6,710	-12.5		29	6,447	-20.2		29	6,704	-13.4	42	27	6,704	-10.8		30	6,655	-14.6	34	29	6,661	-14.5	
00----	29	7,412	-24.0		22	7,592	-18.5	42	29	7,306	-26.6	35	29	7,579	-19.1	42	26	7,592	-17.2		30	7,531	-20.7		28	7,539	-21.1	
50----	28	8,369	-31.2		22	8,575	-25.2		29	8,257	-33.5	36	29	8,559	-25.9	39	25	8,577	-24.8		30	8,505	-27.5		28	8,512	-27.7	
00----	28	9,442	-39.3		22	9,676	-33.7		29	9,322	-40.8		29	9,656	-34.4		24	9,680	-33.3		30	9,594	-36.0		28	9,601	-35.9	
50----	27	10,677	-48.1		22	10,928	-44.0		29	10,543	-47.7		29	10,902	-44.7		24	10,935	-43.5		30	10,835	-45.2		28	10,843	-45.2	
00----	24	12,124	-56.6		21	12,384	-56.4		28	11,993	-53.3		28	12,356	-56.1		24	12,398	-55.8		29	12,300	-55.1		27	12,304	-55.6	
75----	18	12,976	-58.0		21	13,220	-62.7		28	12,843	-53.9		24	13,200	-61.5		24	13,235	-62.1		28	13,147	-59.4		27	13,144	-60.3	
50----	16	13,938	-57.9		17	14,159	-68.3		23	13,835	-53.2		21	14,138	-65.6		23	14,172	-68.3		22	14,088	-62.5		24	14,106	-63.8	
25----	12	15,065	-58.3		8	15,237	-72.9		18	14,983	-53.3		16	15,242	-66.5		21	15,245	-73.5		13	15,183	-64.5		19	15,209	-67.4	
00----	11	16,480	-59.3						17	16,417	-53.5		11	16,586	-65.5		16	16,540	-73.8		7	16,492	-62.6		12	16,545	-65.8	
0-----	8	17,879	-57.9						14	17,848	-52.1		5	17,978	-63.9		13	17,858	-69.2						6	17,867	-61.4	
0-----									9	19,699	-50.3						6	19,603	-62.7									
0-----									8	20,896	-49.0																	

Standard pressure surface (mb.)	EL PASO, TEX. (878 MB.)				ELY, NEV. (807 MB.)				GLASGOW, MONT. (937 MB.)				GRAND JUNCTION, COLO (849 MB.)				GREAT FALLS, MONT. (886 MB.)				GREENSBORO, N. C. (985 MB.)				HATTERAS, N. C. (1016 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
URFACE	30	1,195	28.8	28	30	1,908	17.8	23	30	648	17.7	55	30	1,474	23.5	15	30	1,128	15.1	57	30	273	21.0	83	30	[illegible]	22.9	85
,000--	30	17			30	25			30	80			30	10			30	85			30	142			30	143	22.8	79
50----	30	493			30	487			30	529			30	476			30	532			30	596	22.4	64	30	595	20.9	70
00----	30	981			30	964			30	988	15.9	49	30	956			30	999			30	1,058	19.5	64	30	1,056	18.4	63
50----	30	1,483	27.7	24	30	1,457			30	1,470	12.3	53	30	1,459			30	1,481	13.4	52	30	1,548	16.2	64	30	1,545	15.6	60
00----	30	2,015	23.5	26	30	1,983	18.9	21	30	1,975	8.7	54	30	1,988	22.2	17	30	1,988	9.5	55	30	2,061	12.9	62	30	2,057	12.9	56
50----	30	2,581	18.9	29	30	2,533	14.9	22	30	2,513	4.8	57	30	2,546	17.4	20	30	2,526	5.4	59	30	2,607	10.1	52	30	2,601	10.2	49
00----	30	3,161	13.7	35	30	3,110	9.8	26	30	3,065	1.3	57	30	3,126	12.4	23	30	3,079	1.3	62	30	3,172	6.9	53	30	3,168	6.8	50
50----	30	3,784	8.4	41	30	3,722	4.3	31	30	3,665	- 2.2	56	30	3,743	6.9	28	30	3,678	- 2.6	59	30	3,782	3.1	51	30	3,777	3.5	48
00----	29	4,432	2.8	50	30	4,364	- 1.3	37	30	4,290	- 6.2	53	30	4,391	1.1	33	30	4,302	- 6.4	57	29	4,421	- 0.8	46	30	4,418	- 0.4	45
50----	29	5,132	- 2.8	54	30	5,053	- 7.1	40	29	4,969	-10.2	49	30	5,085	- 4.7	35	30	4,978	-10.8	54	29	5,115	- 4.5	41	29	5,112	- 4.4	45
00----	27	5,877	- 8.2	60	30	5,786	-12.8	42	29	5,692	-15.1	46	30	5,824	-10.5	33	29	5,702	-15.6	50	29	5,857	- 8.7	39	29	5,857	- 8.7	43
50----	27	6,696	-13.0	43	30	6,587	-18.5	41	29	6,485	-20.7	42	30	6,634	-16.2	29	29	6,492	-21.3	49	28	6,674	-14.0	36	28	6,670	-13.7	
00----	26	7,576	-18.2		30	7,450	-24.6	37	29	7,340	-27.1	40	30	7,502	-22.6		29	7,347	-27.7	49	28	7,552	-20.1	34	28	7,552	-19.5	39
50----	25	8,555	-25.6		30	8,409	-31.4		29	8,288	-34.5	40	30	8,468	-29.7		29	8,292	-34.9	49	28	8,528	-27.2		28	8,531	-26.1	
00----	23	9,650	-33.9		30	9,482	-39.4		28	9,348	-42.9		30	9,549	-37.7		28	9,355	-43.3		27	9,619	-35.4		28	9,628	-34.4	
50----	21	10,905	-43.1		30	10,706	-48.3		28	10,554	-51.2		30	10,780	-46.7		25	10,569	-51.8		25	10,860	-45.2		28	10,876	-44.3	
00----	19	12,377	-54.5		30	12,148	-55.5		27	11,994	-55.4		29	12,231	-54.9		20	12,001	-56.4		25	12,314	-55.8		27	12,340	-55.3	
75----	18	13,236	-60.0		28	13,000	-56.7		26	12,848	-54.4		29	13,079	-57.7		19	12,844	-54.8		24	13,151	-61.0		23	13,180	-60.6	
50----	14	14,202	-66.4		24	13,964	-58.2		24	13,840	-53.0		27	14,049	-59.5		18	13,826	-54.2		23	14,101	-64.6		22	14,134	-62.7	
25----	10	15,288	-71.3		19	15,123	-59.8		22	15,014	-54.9		21	15,178	-61.0		10	14,999	-54.4		20	15,203	-66.6		14	15,261	-66.3	
00----	6	16,610	-72.3		15	16,518	-61.9		16	16,441	-55.7		17	16,564	-62.7		6	16,446	-56.2		15	16,552	-67.0					
0-----	5	17,940	-64.4		10	17,911	-60.9		8	17,866	-55.5		9	17,926	-61.9						14	17,911	-62.8					
0-----					5	19,720	-56.4																					

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb)	HAVANA, CUBA. (1011 MB.)				HONOLULU, T. H. (1015 MB.)				INTERNAT. FALLS, MINN. (966 MB.)				JOLIET, ILL. (992 MB.)				LAKE CHARLES, LA. (1014 MB.)				LANDER, WYO. (828 MB.)				LAS VEGAS, NEV. (931 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	22	49	25.7	85	18	3	26.4	61	30	361	13.5	77	30	179	18.6	78	30	5	25.0	88	30	1,696	15.1	49	30	660	30.6	09
1,000--	22	148	25.7	81	18	138	24.6	64	30	69			30	110			30	129	25.3	82	30	56			30	12		
950----	22	606	23.8	71	18	588	20.8	71	30	510	15.3	65	30	557	18.4	65	30	585	23.3	77	30	512			30	477		
900----	22	1,072	21.3	64	18	1,051	17.3	77	30	963	13.3	60	30	1,017	16.6	52	30	1,052	20.5	73	30	979			30	963	30.0	
850----	22	1,566	18.0	66	18	1,538	13.9	81	30	1,441	10.1	64	30	1,502	13.7	60	30	1,545	17.9	65	30	1,469			30	1,467	25.5	
800----	22	2,083	14.8	60	18	2,048	12.1	66	30	1,943	6.7	65	30	2,011	10.8	53	30	2,062	15.3	57	30	1,986	15.9	37	30	1,994	20.6	
750----	22	2,628	11.8	51	18	2,597	13.0		30	2,480	3.3	61	30	2,552	8.2	50	30	2,611	12.3	53	30	2,537	11.7	40	30	2,545	15.5	17
700----	22	3,202	8.8	44	18	3,169	11.6		30	3,026	0.0	59	30	3,114	4.9	49	30	3,182	9.2	48	30	3,103	7.3	43	30	3,124	10.4	20
650----	22	3,814	5.3	38	18	3,787	8.7		30	3,622	- 3.5	56	30	3,719	1.4	46	30	3,797	5.7	44	30	3,711	2.3	47	30	3,735	5.5	22
600----	22	4,461	1.5	39	18	4,442	4.5		30	4,245	- 7.3	55	30	4,356	- 2.3	41	30	4,443	1.8	43	30	4,349	- 2.4	48	30	4,384	1.0	
550----	22	5,162	- 2.5	36	18	5,143	- 0.4		30	4,922	-11.4	48	29	5,044	- 6.5	37	30	5,143	- 2.1	38	30	5,036	- 7.6	50	30	5,077	- 4.0	
500----	22	5,907	- 6.8		18	5,900	- 5.8		30	5,643	-15.6	40	29	5,781	-11.6	35	30	5,891	- 6.3	34	30	5,767	-13.1	48	29	5,824	- 9.7	
450----	22	6,727	-11.5		18	6,719	-12.1		30	6,433	-21.0	39	28	6,585	-16.9	31	30	6,711	-11.8	35	30	6,564	-19.1	45	29	6,632	-15.5	
400----	22	7,616	-17.5		18	7,605	-19.3		28	7,296	-27.3	38	26	7,454	-22.9		30	7,597	-18.2	35	30	7,426	-25.6	39	29	7,507	-22.2	
350----	22	8,601	-24.7		18	8,582	-27.2		27	8,237	-34.4		27	8,417	-29.9		30	8,580	-25.4	39	30	8,380	-32.7	38	28	8,476	-29.5	
300----	22	9,703	-33.3		18	9,674	-35.5		26	9,302	-42.1		27	9,498	-37.9		30	9,679	-33.7		30	9,448	-40.7		27	9,555	-38.0	
250----	22	10,958	-43.3		18	10,917	-45.5		25	10,528	-49.6		27	10,730	-47.3		30	10,931	-43.7		30	10,666	-49.2		27	10,785	-47.3	
200----	22	12,421	-55.5		18	12,367	-57.1		24	11,971	-52.9		26	12,178	-56.1		29	12,392	-55.4		28	12,109	-56.2		26	12,233	-56.1	
175----	21	13,260	-61.9		17	13,207	-62.9		24	12,831	-52.5		23	13,026	-58.2		28	13,233	-61.3		27	12,953	-56.9		25	13,083	-59.3	
150----	18	14,200	-69.0		16	14,146	-67.9		18	13,826	-51.2		20	13,993	-59.8		26	14,179	-67.5		27	13,929	-56.5		24	14,045	-61.6	
125----	8	15,308	-72.6		15	15,240	-66.7		12	14,999	-51.7		18	15,138	-62.5		23	15,262	-73.2		23	15,087	-57.8		23	15,173	-63.7	
100----					14	16,579	-70.1		5	16,509	-55.6		12	16,488	-62.0		17	16,565	-74.0		15	16,483	-60.8		21	16,537	-65.6	
80-----					13	17,903	-68.8						5	17,875	-59.6		12	17,878	-68.1		10	17,896	-59.0		14	17,902	-63.7	
60-----					7	19,661	-62.8										9	19,632	-61.9		5	19,732	-55.2		9	19,689	-58.3	
50-----					6	20,795	-59.6										5	20,778	-59.5						7	20,853	-56.0	

Standard pressure surface (mb)	LITTLE ROCK, ARK. (1005 MB.)				MAZATLAN, MEXICO (1007 MB.)				MEDFORD, ORE. (988 MB.)				MERIDA, MEXICO (1011 MB.)				MIAMI, FLA. (1018 MB.)				NANTUCKET, MASS. (1013 MB.)				NASHVILLE, TENN. (995 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	79	24.6	76	29	14	28.5	69	30	401	21.1	47	30	27	27.7	72	29	4	26.3	78	30	14	14.3	90	30	177	23.3	75
1,000--	30	124	25.0	73	29	75	28.1	69	30	115			30	120	27.1	72	29	161	25.9	76	30	124	16.2	78	30	131		
950----	30	581	23.4	69	29	534	25.5	58	30	565	20.1	46	30	574	24.4	70	29	614	23.0	75	30	565	17.2	63	30	584	22.6	66
900----	30	1,044	20.1	68	29	1,004	24.2	57	30	1,024	16.7	49	30	1,045	21.4	72	29	1,083	20.5	64	30	1,023	15.0	61	30	1,051	19.4	47
850----	30	1,536	17.5	61	29	1,503	21.4	63	30	1,508	12.8	55	30	1,539	18.3	72	29	1,575	17.8	59	30	1,505	12.4	56	30	1,541	16.5	59
800----	30	2,052	15.4	47	29	2,026	18.2	63	30	2,013	8.9	59	30	2,057	15.0	69	29	2,091	14.6	55	30	2,011	9.8	52	30	2,055	13.9	49
750----	30	2,601	12.6	41	29	2,583	15.1	60	30	2,545	5.2	60	30	2,606	12.1	61	29	2,638	11.4	50	30	2,549	7.2	48	30	2,602	11.3	45
700----	30	3,172	9.1	41	29	3,158	11.8	59	30	3,105	2.2	56	30	3,177	9.1	57	29	3,209	8.1	50	30	3,109	4.3	44	30	3,171	8.0	44
650----	30	3,785	5.5	47	29	3,780	7.7	61	30	3,704	- 1.3	51	29	3,794	6.0	50	29	3,822	4.6	45	30	3,710	1.0	42	30	3,782	4.2	44
600----	30	4,432	1.5	42	28	4,430	3.3	64	30	4,334	- 4.9	47	29	4,440	2.2	47	29	4,465	0.8	43	30	4,348	- 2.9	43	30	4,424	0.2	43
550----	29	5,132	- 2.6	37	28	5,129	- 1.4	61	30	5,018	- 9.1	44	29	5,137	- 2.1	43	28	5,165	- 3.0	46	30	5,034	- 7.0	42	30	5,117	- 4.1	40
500----	29	5,877	- 7.1		28	5,885	- 5.7	51	30	5,744	-14.0	41	27	5,888	- 6.7	43	28	5,909	- 7.2	42	30	5,769	-11.3	35	30	5,862	- 8.6	39
450----	29	6,695	-12.4		27	6,710	-10.7	42	29	6,538	-19.7	39	26	6,707	-11.7	41	28	6,726	-12.1	40	29	6,572	-16.6		30	6,676	-13.4	32
400----	29	7,581	-18.3		25	7,598	-16.2	37	29	7,400	-26.3	39	26	7,597	-17.7	40	28	7,615	-17.9	38	29	7,445	-22.5		30	7,559	-19.4	
350----	29	8,564	-25.5		24	8,588	-23.0		29	8,351	-33.8	36	26	8,581	-24.8		28	8,599	-24.9	37	29	8,411	-29.6		30	8,537	-26.3	
300----	29	9,662	-34.2		23	9,698	-31.3		28	9,413	-41.8		26	9,683	-33.3		28	9,701	-33.2		29	9,490	-38.1		30	9,633	-34.5	
250----	28	10,908	-44.5		23	10,962	-41.2		28	10,632	-50.7		25	10,936	-43.6		28	10,955	-43.1		29	10,719	-47.7		30	10,882	-44.1	
200----	27	12,366	-55.6		23	12,439	-53.1		27	12,073	-55.8		25	12,394	-55.9		25	12,424	-55.1		28	12,157	-56.8		29	12,341	-54.9	
175----	26	13,213	-61.2		21	13,283	-59.6		25	12,913	-56.0		25	13,230	-62.7		22	13,267	-61.0		27	12,997	-59.6		27	13,182	-60.4	
150----	21	14,166	-66.8		21	14,230	-66.5		24	13,897	-55.4		25	14,163	-69.5		15	14,213	-66.3		26	13,949	-59.8		23	14,137	-64.8	
125----	17	15,262	-70.5		18	15,320	-72.6		24	15,055	-56.6		23	15,234	-75.2		10	15,305	-70.2		20	15,084	-60.4		13	15,273	-69.3	
100----	12	16,598	-68.6		16	16,619	-74.3		20	16,460	-56.1		17	16,519	-75.8		6	16,639	-70.2		13	16,477	-59.5		12	16,593	-68.8	
80-----	6	17,949	-64.9		10	17,941	-70.3		11	17,854	-56.1		10	17,825	-69.8		5	17,967	-65.5		6	17,875	-57.8		10	17,929	-65.3	
60-----					8	19,677	-64.5		5	19,642	-54.7		6	19,557	-63.5										6	19,722	-60.3	
50-----					6	20,816	-61.5																					

Standard pressure surface (mb)	NEW ORLEANS, LA (1016 MB.)				NORTH PLATTE, NEBR. (914 MB.)				OAKLAND, CALIF. (1014 MB.)				OKLAHOMA CITY, OKLA. (967 MB.)				OMAHA, NEBR. (976 MB.)				PHOENIX, ARIZ. (968 MB.)				PITTSBURGH, PA. (971 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	2	26.0	81	30	849	20.1	62	30	8	14.7	76	30	391	23.2	76	29	308	22.9	63	30	338	30.6	19	30	382	19.1	72
1,000--	29	139	26.2	79	30	61			30	124	13.6	77	30	97			29	93			30	38			30	123		
950----	29	598	23.5	78	30	514			30	561	14.4	67	30	552	24.0	69	29	547	22.4	55	30	505	32.9		30	572	19.2	65
900----	29	1,063	20.4	74	30	984	21.5	51	30	1,016	16.6	44	30	1,022	21.5	67	29	1,011	19.6	59	30	905	29.3		30	1,032	16.9	64
850----	29	1,556	17.9	65	30	1,479	19.7	45	30	1,501	14.9	37	30	1,516	19.1	60	29	1,501	16.5	58	30	1,489	25.1		30	1,517	13.8	64
800----	29	2,073	15.1	56	30	1,998	16.3	46	30	2,012	12.1	35	30	2,035	17.1	46	29	2,015	14.1	51	30	2,015	20.5	21	30	2,026	10.6	60
750----	29	2,622	12.2	47	30	2,547	12.7	46	30	2,557	9.1	28	30	2,588	14.3	42	29	2,562	11.2	47	30	2,572	15.8	23	30	2,570	7.4	58
700----	29	3,192	9.2	41	30	3,119	8.7	45	30	3,118	5.6	25	30	3,162	10.5	42	28	3,131	7.6	43	30	3,147	11.4		30	3,127	4.8	47
650----	27	3,812	5.6	39	30	3,731	4.3	43	30	3,725	2.0	23	30	3,780	6.5	44	29	3,740	3.6	38	30	3,767	7.0		30	3,733	1.7	43
600----	26	4,455	1.5	43	30	4,373	- 0.5	45	30	4,361	- 2.1	26	30	4,426	2.2	41	29	4,383	- 0.7	35	30	4,413	2.3		29	4,371	- 1.6	41
550----	25	5,152	- 2.4	36	30	5,066	- 5.8	47	29	5,048	- 6.8	25	30	5,126	- 2.6	41	29	5,074	- 5.3	32	30	5,105	- 2.8		29	5,063	- 5.7	38
500----	25	5,902	- 6.9	39	29	5,804	-10.9	40	29	5,783	-11.9	24	30	5,872	- 7.4	38	29	5,813	-10.4		30	5,857	- 7.9		28	5,801	-10.4	
450----	25	6,725	-11.7		28	6,613	-16.5	30	29	6,586	-17.9	25	30	6,693	-12.6	32	28	6,625	-16.2		30	6,669	-13.7		28	6,610	-15.3	
400----	25	7,610	-17.7		27	7,477	-23.1		29	7,451	-24.5	25	30	7,374	-18.7		27	7,491	-22.7		30	7,552	-20.2		28	7,486	-21.3	
350----	25	8,594	-24.8		27	8,441	-30.0		28	8,408	-32.2		30	8,355	-25.8		26	8,454	-29.9		30	8,526	-27.7		27	8,464	-28.0	
300----	25	9,697	-32.9		27	9,520	-38.3		28	9,477	-40.6		30	9,653	-34.2		26	9,534	-38.2		30	9,614	-36.3		26	9,554	-36.1	
250----	25	10,953	-42.8		26	10,742	-47.4		27	10,692	-48.9		30	10,902	-44.2		26	10,765	-47.5		29	10,853	-45.3		26	10,794	-45.9	
200----	25	12,420	-54.5		24	12,183	-56.3		27	12,135	-55.4		29	12,360	-55.2		25	12,211	-56.1		28	12,308	-54.9		25	12,244	-55.8	
175----	23	13,268	-60.6		23	13,028	-58.9		27	12,984	-56.6		29	13,200	-60.6		24	13,052	-58.9		27	13,150	-59.8		25	13,090	-60.3	
150----	20	14,223	-66.3		20	14,002	-60.2		26	13,960	-56.9		26	14,152	-66.0		20	14,017	-60.4		27	14,107	-63.9		22	14,060	-62.2	
125----	14	15,321	-71.8		19	15,138	-62.8		24	15,098	-58.4		25	15,251	-69.6		15	15,173	-63.1		21	14,107	-63.9		19	15,184	-62.7	
100----	10	16,630	-71.6		16	16,305	-63.3		26	16,485	-59.5		19	16,588	-69.5		9	16,536	-62.8		22	15,214	-67.1		18	15,557	-62.4	
80-----	6	17,958	-67.0		10	17,906	-60.6		14	17,871	-59.7		12	17,934	-64.6						11	16,561	-67.7		12	17,948	-60.8	
60-----									9	19,678	-56.7		7	19,699	-58.6										5	19,777	-57.5	
50-----									7	20,839	-55.5																	
40-----									5	22,251	-53.4																	

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

JUNE 1950

Standard pressure surface (mb.)	PORTLAND, MAINE. (1010 MB.)				RAPID CITY, S. DAK. (900 MB.)				ST. CLOUD, MINN. (973 MB.)				SAN ANTONIO, TEX. (985 MB.)				SAN JUAN, P. R. (1016 MB.)				SANTA MARIA, CALIF. (1006 MB.)				S STE. MARIE, MICH. (985 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
URFACE	30	20	14.6	83	30	880	16.1	62	30	317	17.5	67	30	240	26.5	70	30	19	25.8	88	30	71	13.4	82	30	221	11.5	82
,000--	30	106	17.0	71	30	67			30	76			30	108			30	155	24.8	87	30	122	13.0	82	30	90		
50-----	30	547	17.3	57	30	521			30	525	19.4	54	30	571	25.0	71	30	603	21.6	85	30	565	13.6	70	30	527	13.6	69
00-----	30	1,005	14.6	58	30	982			30	982	16.8	53	30	1,037	21.8	75	30	1,073	18.5	83	30	1,012	16.8	44	30	977	12.2	64
50-----	30	1,485	11.2	63	30	1,470	17.0	45	30	1,467	13.2	55	30	1,532	18.8	76	30	1,563	16.1	72	30	1,499	16.6	32	30	1,454	9.3	62
00-----	30	1,989	7.9	64	30	1,983	13.4	48	30	1,974	10.2	60	30	2,052	16.1	69	30	2,077	14.4	58	30	2,012	13.7	30	30	1,954	6.3	60
50-----	30	2,527	5.2	53	30	2,530	9.8	50	30	2,514	6.9	47	30	2,598	13.9	48	30	2,625	11.9	50	30	2,556	10.6	25	30	2,487	3.2	56
00-----	30	3,080	2.5	48	30	3,093	5.8	50	30	3,072	3.4	45	30	3,179	11.1	38	30	3,196	8.4	47	30	3,123	7.3	22	30	3,037	0.2	49
50-----	29	3,682	- 0.6	41	30	3,699	1.4	47	30	3,674	- 0.2	43	29	3,793	7.6	31	30	3,806	4.8	44	30	3,733	3.6		29	3,630	- 3.2	45
00-----	29	4,312	- 4.1	38	30	4,335	- 2.7	42	30	4,305	- 4.0	40	27	4,452	3.8	30	30	4,453	1.4	41	30	4,373	- 0.4		29	4,255	- 6.8	42
50-----	29	4,994	- 8.3		29	5,021	- 7.3	38	30	4,992	- 8.2	38	25	5,154	- 0.4		30	5,154	- 2.1	38	30	5,067	- 4.8		28	4,936	-11.0	37
00-----	29	5,726	-13.1		29	5,752	-12.6	41	30	5,720	-13.1	36	25	5,911	- 5.1		30	5,901	- 6.5	38	30	5,805	- 0.9		28	5,658	-15.9	34
50-----	28	6,520	-18.8		29	6,552	-18.2	38	30	6,520	-18.5	32	25	6,733	-10.1		30	6,719	-11.8	40	30	6,615	-15.7		28	6,451	-21.3	33
00-----	27	7,381	-25.3		29	7,418	-24.2	38	30	7,383	-24.7	30	25	7,630	-16.8		29	7,609	-18.1	43	30	7,488	-22.5		28	7,303	-27.4	37
50-----	27	8,337	-32.2		29	8,376	-31.6	38	30	8,341	-32.0		24	8,621	-23.9		28	8,592	-25.3	46	30	8,455	-30.1		27	8,251	-34.5	35
00-----	25	9,406	-39.6		29	9,448	-39.8		30	9,411	-40.2		23	9,725	-32.4		28	9,682	-33.9	43	30	9,531	-38.3		27	9,312	-41.8	
50-----	22	10,642	-47.9		29	10,669	-48.7		30	10,633	-48.3		21	10,985	-42.4		27	10,941	-44.3		29	10,763	-47.0		27	10,527	-48.7	
00-----	21	12,083	-57.0		25	12,101	-56.0		28	12,088	-53.9		20	12,454	-54.1		27	12,397	-56.8		28	12,211	-55.4		26	11,985	-53.5	
75-----	19	12,929	-60.0		21	12,944	-55.2		26	12,937	-54.7		20	13,298	-60.5		25	13,230	-63.6		27	13,059	-57.9		24	12,832	-53.1	
50-----	18	13,888	-59.3		16	13,944	-55.3		23	13,917	-53.9		16	14,250	-67.2		21	14,162	-69.6		24	14,027	-59.2		20	13,802	-53.1	
25-----	17	15,032	-59.1		16	15,101	-57.4		16	15,067	-54.7		14	15,328	-72.7		20	15,239	-73.0		20	15,164	-62.1		16	14,967	-54.2	
00-----	12	16,427	-59.4		11	16,507	-61.1		13	16,486	-56.4		6	16,632	-74.8		16	16,546	-73.0		15	16,552	-64.3		13	16,379	-54.9	
)-----	6	17,821	-58.2		7	17,893	-58.1		7	17,933	-56.2						13	17,856	-71.3		10	17,937	-63.8		6	17,789	-54.3	

Standard pressure surface (mb.)	SPOKANE, WASH. (931 MB.)				SWAN ISLAND, W. I. (1013 MB.)				TACUBAYA, MEXICO (773 MB.)				TAMPA, FLA. (1016 MB.)				TATOOSH ISLAND, WASH. (1014 MB.)				TOLEDO, OHIO (991 MB.)				WASHINGTON, D. C. (1013 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
URFACE	29	722	18.5	52	30	10	26.4	84	20	2,306	17.5	64	[illegible]	9	26.2	78	30	31	11.7	88	30	191	18.2	77	30	25	22.0	71
,000--	29	MM			30	123	25.7	84	20	43			30	153	25.9	75	30	145	11.7	84	30	112			30	135	21.8	68
50-----	29	549			30	579	22.6	83	20	507			30	604	23.4	71	30	578	11.3	77	30	558	18.8	63	30	583	19.9	62
00-----	29	1,008	16.5	52	30	1,044	20.0	78	20	986			30	1,076	20.7	66	30	1,026	10.1	71	30	1,017	15.7	62	30	1,044	16.9	63
50-----	29	1,492	12.7	56	30	1,536	17.5	70	20	1,483			30	1,568	17.6	65	30	1,500	8.1	68	30	1,500	12.6	60	30	1,529	13.6	65
00-----	29	1,997	8.7	61	30	2,052	14.6	63	20	2,014			30	2,085	14.3	63	30	1,999	5.8	63	30	2,007	10.3	50	30	2,038	10.6	61
50-----	29	2,531	4.7	63	30	2,602	11.9	56	20	2,567	15.7	65	30	2,627	11.3	61	30	2,530	2.9	56	30	2,548	7.5	44	30	2,583	8.1	51
00-----	29	3,087	0.9	62	30	3,170	8.9	52	20	3,146	11.2	69	30	3,201	8.0	55	30	3,080	- 0.2	57	30	3,108	4.8	40	30	3,140	5.2	47
50-----	29	3,684	- 2.9	58	30	3,788	5.7	49	20	3,766	6.7	75	30	3,810	4.3	56	30	3,675	- 3.9	57	30	3,713	1.3	40	30	3,747	1.7	45
00-----	29	4,309	- 6.4	56	30	4,431	1.9	52	20	4,415	2.2	78	30	4,457	0.7	49	30	4,298	- 7.6	52	29	4,350	- 2.6	36	30	4,382	- 2.0	44
50-----	29	4,988	-10.5	53	30	5,130	- 2.3	50	19	5,120	- 2.1	78	30	5,150	- 3.4	43	30	4,976	-11.6	48	29	5,040	- 6.7		30	5,070	- 6.0	35
00-----	29	5,712	-15.4	54	30	5,878	- 6.6	47	19	5,868	- 6.3	59	30	5,899	- 7.7	43	30	5,694	-16.5	43	29	5,774	-11.1		30	5,809	-10.7	36
50-----	29	6,501	-20.9	52	30	6,703	-11.4	45	19	6,692	-10.7	49	30	6,718	-12.7	46	30	6,481	-22.1	42	29	6,578	-16.3		30	6,619	-16.0	
00-----	29	7,358	-27.1	45	29	7,589	-17.4	43	19	7,583	-16.4		30	7,600	-18.6	43	30	7,335	-28.2	40	28	7,449	-22.7		30	7,489	-21.9	
50-----	29	8,305	-34.6	45	29	8,575	-24.3	40	19	8,574	-23.7		30	8,582	-25.7	42	30	8,278	-35.5	38	28	8,414	-30.1		30	8,458	-28.9	34
00-----	28	9,371	-42.5		29	9,679	-32.9		19	9,681	-32.4		30	9,681	-33.8	45	29	9,328	-43.7		26	9,480	-38.7		30	9,542	-37.0	
50-----	28	10,580	-50.7		29	10,935	-43.2		17	10,939	-42.5		30	10,933	-43.6		28	10,533	-51.4		26	10,707	-47.9		30	10,777	-46.5	
00-----	27	12,012	-54.9		29	12,398	-55.8		16	12,405	-55.3		28	12,391	-55.5		26	11,958	-55.0		24	12,144	-56.7		30	12,223	-56.8	
75-----	24	12,865	-53.5		28	13,231	-62.6		16	13,244	-62.3		27	13,229	-61.4		26	12,813	-53.7		22	12,979	-59.3		28	13,059	-61.1	
50-----	22	13,862	-52.5		27	14,166	-69.2		15	14,183	-69.2		27	14,172	-66.9		23	13,810	-52.4		20	13,942	-58.7		27	14,013	-62.5	
25-----	16	15,028	-52.3		25	15,337	-74.4		12	15,250	-74.9		17	15,267	-71.3		20	14,986	-51.9		14	15,096	-61.0		26	15,129	-64.2	
00-----	11	16,481	-53.4		21	16,526	-74.9		6	16,555	-76.1		12	16,596	-71.5		20	16,426	-52.9		11	16,495	-61.4		25	16,498	-63.4	
)-----					12	17,839	-70.5						8	17,918	-68.0		16	17,848	-53.4		10	17,893	-60.0		22	17,878	-61.4	
)-----					7	19,565	-63.8										10	19,706	-52.1		5	19,717	-56.1		16	19,672	-57.5	
)-----																	8	20,896	-52.1						10	20,816	-55.8	
)-----																	5	22,324	-51.0						6	22,232	-53.3	

Note: All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 15 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

Table 21

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	159	5.0	30	214	2.5	30	302	2.0	28	348	1.8	29	286	3.7	29	328	4.1	30	135	6.8	29	243	6.1	29	239	2.6	30	206	1.8	29	240	1.9	30	236	2.
500	--	---	----	--	---	----	30	298	2.3	--	---	----	--	---	----	--	---	----	30	142	8.5	29	246	7.8	29	244	4.4	30	193	2.5	29	232	3.6	--	---	---
1,000	30	164	5.6	--	---	----	30	288	2.7	--	---	----	29	283	4.2	29	325	4.1	25	153	7.0	29	246	8.9	29	248	5.8	29	236	2.4	28	244	4.6	--	---	---
1,500	29	180	4.7	--	---	----	29	291	3.4	28	320	2.1	27	276	6.0	29	316	3.1	20	158	6.4	27	254	8.5	28	256	7.3	28	280	3.9	27	267	4.8	30	234	2.
2,000	28	199	4.0	30	210	3.8	29	288	4.2	28	286	2.3	25	280	7.2	28	283	2.6	15	148	5.7	26	268	9.5	26	265	7.9	28	289	4.8	25	285	5.8	30	230	2.
2,500	28	214	4.2	30	223	4.3	28	292	5.6	25	260	3.9	23	278	8.9	28	252	3.0	14	137	5.1	24	282	11.1	20	272	9.8	27	294	6.2	18	294	4.9	30	222	2.
3,000	25	211	3.1	30	238	4.9	28	292	6.8	22	255	4.8	22	277	9.6	28	255	4.7	12	140	4.8	23	285	11.8	13	284	11.2	27	298	6.1	18	286	7.2	30	235	3.
4,000	23	230	2.7	30	248	7.5	24	280	6.6	18	257	7.9	18	280	12.4	28	247	6.3				18	292	13.7	10	282	13.3	26	297	5.9	15	289	11.9	30	246	4.
5,000	21	256	4.2	29	252	9.1	20	278	6.9	15	261	8.5	16	276	14.3	23	249	8.4				16	290	16.4	10	278	14.9	22	294	6.4	12	299	12.9	29	248	4.
6,000	18	249	4.6	26	249	11.4	19	289	7.1	13	264	11.7	13	270	15.8	20	271	9.3				12	291	16.5				17	274	8.0	11	300	15.4	27	244	7.
8,000	15	247	6.3	24	250	15.0	10	284	6.6				10	271	17.9	10	273	13.5										11	291	9.4				20	242	9.
10,000	12	267	7.5	20	249	20.4																												16	248	15.
12,000	10	263	11.0	16	253	26.4																														

Altitude (meters) m.s.l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	228	3.1	30	254	4.4	30	259	0.9	25	281	2.0	30	94	1.9	29	240	3.1	30	202	3.1	30	183	1.9	29	303	3.0	30	120	4.7	29	220	1.3	30	232	1.
500	--	---	----	--	---	----	30	262	1.7	--	---	----	30	151	1.6	29	246	4.9	--	---	----	30	202	3.0	29	306	3.1	30	129	4.3	29	208	2.3	30	241	2.
1,000	--	---	----	--	---	----	30	266	2.6	25	265	3.1	28	232	1.9	28	252	5.0	30	196	4.1	30	222	2.8	29	313	2.4	30	114	2.1	28	218	2.0	30	255	4.
1,500	--	---	----	30	254	4.4	30	277	3.8	25	272	3.1	28	269	2.9	25	258	6.9	30	203	4.4	29	232	2.6	29	282	1.8	28	81	.9	22	235	.6	28	264	5.
2,000	30	225	3.3	30	244	4.7	30	291	5.6	25	265	4.3	26	280	3.0	25	266	8.5	30	205	4.5	25	233	3.7	28	252	2.4	25	32	1.1	19	27	.9	27	269	6.
2,500	30	213	3.4	30	241	4.9	29	291	6.6	25	264	4.7	25	288	2.4	23	276	10.5	30	211	5.7	24	241	4.4	27	245	2.6	20	360	1.2	16	50	2.0	25	279	6.
3,000	30	217	4.0	30	234	5.2	24	289	7.4	21	263	6.6	24	287	2.0	21	279	9.8	30	223	6.2	23	255	4.4	27	255	2.8	19	353	1.3				24	281	8.
4,000	29	225	6.4	30	227	7.2	21	289	8.4	17	263	7.8	20	288	2.6	16	285	12.0	30	231	8.0	15	262	5.1	19	264	5.3	17	340	.7				23	278	9.
5,000	27	236	8.7	29	237	11.3	16	291	9.3	12	277	5.5	18	282	2.1	14	285	14.0	29	228	9.5	12	298	5.6	18	268	7.6	16	233	.6				21	283	8.
6,000	22	243	9.7	27	241	14.7	16	292	8.9	10	285	7.6	15	290	4.2				27	232	12.5				17	273	9.9	15	252	1.1				17	296	8.
8,000	17	238	15.1	22	250	17.3	13	295	9.6				11	293	3.7				25	235	16.2				11	271	11.5							14	288	10.
10,000	14	231	17.4	15	247	22.8	10	312	12.7										16	245	17.3													11	266	17.
12,000																			11	248	25.5															
14,000																																				

Altitude (meters) m.s.l.	New York, N.Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie Mich. (221 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	29	229	2.3	30	276	5.9	30	173	6.9	30	194	1.9	30	252	1.4	29	334	1.8	30	266	4.1	30	208	1.7	29	136	3.4	30	260	3.7	29	284	3.5	30	257	2.
500	29	233	5.3	30	278	4.8	30	176	7.4	30	202	2.2	30	250	1.9	--	---	----	30	265	4.4	30	222	2.8	29	141	4.1	30	264	2.3	29	275	5.8	30	244	2.
1,000	27	257	6.7	28	282	2.5	30	176	8.0	28	224	2.8	30	242	2.6	29	336	1.9	30	257	4.1	28	228	4.0	29	149	4.5	24	290	.8	26	262	8.2	29	228	2.
1,500	27	270	7.5	27	281	2.3	28	194	6.7	28	242	3.9	30	230	2.9	29	313	2.2	29	261	5.5	27	251	4.5	29	160	4.2	23	266	1.4	24	266	9.2	25	211	2.
2,000	26	278	8.3	27	271	2.5	26	216	5.7	25	260	5.5	30	226	4.2	27	281	3.3	25	284	7.2	22	262	7.5	29	174	3.8	23	254	1.9	23	276	10.2	21	193	2.
2,500	24	275	10.4	27	278	3.3	22	237	5.3	21	264	6.9	30	223	5.8	26	268	5.4	21	284	9.1	21	266	8.3	22	184	4.2	22	240	3.6	22	278	11.1	19	202	2.
3,000	20	285	10.3	26	279	3.7	19	262	5.2	18	269	8.4	30	220	6.7	24	267	7.6	21	285	10.6	17	284	8.7	18	174	4.1	22	227	4.8	19	281	12.2	17	214	2.
4,000	13	285	9.8	26	272	4.9	16	281	5.2	15	262	12.9	30	224	7.4	16	270	11.2	16	278	12.6	16	290	11.5	16	178	3.1	21	232	7.0	12	292	15.5	14	218	2.
5,000				26	275	6.4	13	287	7.3	14	268	14.7	29	224	9.8	14	274	12.4	17	281	15.3	13	297	11.2	12	141	1.2	20	231	8.8				14	249	4.
6,000				26	280	8.0	12	274	8.4	14	266	14.8	27	229	10.3	12	272	15.6	12	272	19.6	13	294	13.7	10	145	1.2	20	229	10.2				13	266	6.
8,000				20	270	10.7				12	267	19.4	21	234	15.0													18	233	14.5				11	272	11.
10,000				14	260	12.2							13	261	11.4													16	241	21.2						
12,000																																				
14,000																																				

Altitude (meters) m.s.l.	Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	246	1.5	30	257	1.3
500	--	---	----	30	242	2.5
1,000	30	223	1.9	30	252	3.5
1,500	30	223	1.6	29	268	5.2
2,000	27	234	1.5	27	286	6.9
2,500	26	243	1.5	25	291	8.1
3,000	21	235	2.6	25	287	9.3
4,000	18	238	3.7	21	283	11.6
5,000	12	237	6.8	17	281	12.8
6,000				14	275	14.5

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

Table 22 — JUNE 1950

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			International Falls, Minn. (358 m.)			Little Rock, Ark. (80 m.)		
	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed
Surface	30	148	1.5	30	157	5.2	29	337	1.9	30	124	4.5	30	216	3.0	30	174	0.9	30	168	2.2	30	309	1.3	30	223	0.9	30	122	0.9	29	265	0.8	30	163	0.9
500	--	---	----	--	---	----	--	---	----	28	139	9.5	30	240	7.2	30	216	4.3	30	194	4.8	--	---	----	30	223	1.8	30	217	2.4	29	269	2.0	30	180	3.7
1,000	--	---	----	30	160	9.7	28	323	4.5	29	142	8.7	30	252	9.0	30	248	3.5	30	220	6.6	--	---	----	30	261	2.9	30	254	3.9	29	279	5.6	30	192	4.3
1,500	--	---	----	30	171	10.3	28	305	5.3	29	140	7.3	30	262	10.3	30	280	3.4	30	239	6.8	30	304	1.4	29	276	3.9	30	270	4.7	29	280	8.1	30	205	4.8
2,000	30	215	3.1	30	182	7.1	27	300	7.4	29	142	5.6	30	269	10.8	30	293	4.2	30	252	6.2	30	265	3.7	29	274	4.4	30	274	4.9	29	281	9.8	30	214	5.0
2,500	30	225	4.4	30	196	3.8	26	290	8.4	29	148	4.5	29	269	10.6	30	304	4.6	30	265	5.9	30	249	4.5	29	286	5.3	30	276	5.5	29	283	11.2	30	226	4.8
3,000	30	231	4.5	30	211	2.3	24	287	9.8	29	147	3.4	28	265	11.9	30	300	4.6	30	269	7.0	30	242	5.4	29	285	6.4	30	285	5.6	29	284	13.0	30	239	4.6
4,000	30	249	5.7	30	297	3.2	23	281	12.8	29	152	2.3	28	267	13.5	28	301	5.1	29	281	9.6	29	234	7.0	29	292	7.1	29	286	6.1	29	287	15.7	30	270	3.6
5,000	29	257	7.5	30	303	4.3	22	287	15.9	29	90	1.4	27	268	16.2	26	288	6.0	29	285	10.7	29	237	9.5	28	289	7.8	29	292	7.8	26	290	16.4	29	281	5.1
6,000	27	258	9.0	30	274	4.8	22	285	17.3	28	42	1.6	26	270	17.9	26	282	7.0	29	285	12.4	29	247	12.5	28	289	8.2	27	288	8.0	24	288	18.8	29	272	7.1
8,000	27	252	13.9	29	250	6.8	20	285	19.8	25	358	3.0	21	269	20.4	27	284	9.4	29	279	17.2	21	252	15.9	27	287	12.6	26	293	11.2	18	296	23.5	29	277	10.5
10,000	25	249	18.6	29	262	11.8	18	282	25.2	24	343	5.5	16	268	24.6	26	292	11.8	28	276	21.7	13	274	14.8	26	289	14.4	26	298	12.3	14	284	22.7	29	275	15.0
12,000	14	238	21.6	28	256	16.0	12	284	25.2	21	347	6.5	10	276	26.4	23	300	14.3	23	275	25.1	11	268	13.5	24	291	18.5	26	296	15.2				27	272	22.3
14,000	11	248	19.8	21	260	8.8				11	359	5.9				17	313	15.6	14	279	24.6				21	285	16.6	19	301	14.8				17	292	14.1
16,000				12	194	4.6																			17	289	13.3							10	273	8.1
18,000																									10	274	4.2									

Altitude (meters) m.s.l.	Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			New Orleans, La. (6 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)		
	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed
Surface	30	329	3.8	30	122	1.5	29	222	3.1	30	180	1.3	30	155	1.3	30	268	5.3	30	157	5.2	30	360	2.1	30	113	5.1	30	77	3.8	30	230	2.0	30	275	4.3
500	30	329	4.1	30	138	4.1	28	246	7.1	30	223	3.4	30	179	3.1	30	277	5.9	24	156	6.0	--	---	----	30	139	7.9	30	91	9.8	29	244	3.4	30	318	4.5
1,000	30	323	4.6	30	131	3.7	29	257	6.7	30	245	5.1	30	167	2.6	30	288	5.8	24	178	8.9	30	3	2.2	30	149	8.3	30	97	9.8	29	262	7.1	30	330	4.7
1,500	30	316	3.7	30	111	2.7	29	257	6.0	30	257	4.6	30	155	2.5	30	293	3.6	26	194	7.5	30	335	2.5	30	160	6.3	30	96	9.3	27	284	8.8	30	348	3.6
2,000	30	301	3.0	30	84	2.8	29	252	6.6	30	279	4.4	30	158	2.3	30	303	3.3	27	214	5.7	30	289	3.6	30	161	4.4	30	98	9.4	26	288	8.9	30	349	2.7
2,500	30	280	2.5	30	78	2.8	29	249	7.0	30	286	5.4	30	159	2.1	30	298	3.2	29	232	4.1	30	272	5.8	30	173	3.7	30	99	8.9	25	288	10.4	30	312	2.5
3,000	30	250	3.0	30	76	2.9	29	252	8.1	30	288	6.5	30	156	2.4	30	293	3.5	29	258	4.3	30	266	8.2	30	179	2.9	29	98	8.2	26	293	11.7	30	286	3.8
4,000	30	259	4.8	30	79	2.4	28	259	10.2	30	291	8.1	29	174	.3	30	273	5.3	30	289	5.1	30	268	11.4	29	226	1.2	29	100	5.9	24	291	14.8	29	265	5.2
5,000	30	267	6.3	30	69	1.6	26	268	10.5	30	290	8.5	26	281	2.0	30	272	6.9	30	288	6.3	27	267	14.1	26	332	1.4	29	99	3.4	25	287	16.2	29	260	6.8
6,000	29	272	6.7	29	48	.9	24	267	13.3	30	285	10.3	26	281	3.3	29	278	9.2	30	287	8.2	27	267	15.1	25	332	1.4	29	120	2.2	23	281	19.4	29	256	8.4
8,000	28	278	8.8	29	303	1.5	20	267	14.8	30	280	12.1	26	309	4.9	27	279	13.1	30	272	12.7	26	273	19.4	24	317	3.9	28	235	2.7	19	277	23.5	28	256	10.4
10,000	24	296	13.6	29	303	3.8	15	282	14.8	29	280	16.5	26	311	6.9	24	277	11.5	30	271	18.2	23	264	22.5	22	293	4.4	27	256	7.7	17	284	28.4	27	257	13.4
12,000	14	265	13.9	27	348	5.8	10	273	12.7	28	280	19.6	25	319	9.0	15	288	9.3	27	271	22.9	16	254	19.6	18	274	8.2	27	268	10.5	13	273	26.6	21	253	14.3
14,000				17	354	4.0				22	296	16.9	17	344	5.6				25	266	18.8	11	259	21.5	16	285	4.3	22	281	11.6				14	263	12.2
16,000										11	295	10.4							20	257	11.3							18	240	2.6				10	278	6.2
18,000																			11	24	2.0							13	90	6.0						

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	No of observations	Direction	Speed	No of observations	Direction	Speed	No of observations	Direction	Speed
Surface	30	252	1.0	30	208	1.2	30	220	2.3
500	30	248	5.2	--	---	----	30	250	2.6
1,000	30	258	8.6	30	238	1.9	30	252	2.1
1,500	30	265	9.5	30	271	2.2	30	244	1.2
2,000	29	271	10.8	30	262	1.4	30	266	.9
2,500	28	269	12.3	29	252	1.1	30	275	1.2
3,000	27	275	12.7	29	266	1.5	30	274	1.0
4,000	24	277	14.7	29	263	3.3	30	253	1.5
5,000	22	280	14.6	29	265	4.6	30	271	3.0
6,000	22	281	17.2	27	243	3.9	29	272	4.6
8,000	17	274	20.2	25	261	4.5	27	253	4.8
10,000	12	286	21.1	23	269	7.6	25	226	4.9
12,000	10	283	24.0	17	262	9.5	21	253	4.6
14,000				14	260	6.5	17	238	5.7
16,000							16	227	3.1
18,000							12	190	1.4

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.

SOLAR RADIATION DATA

Table 30.—Solar radiation intensities, tabulated in langleys

TABLE MOUNTAIN, CALIF.

Date	Sun's zenith distance: A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a.m.	1:30 p.m.
	Air mass: 3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
										Mb.	Mb.
June											
2	----	----	----	1.32	----	----	----	----	----		
7	----	----	----	1.44	----	----	----	----	----		
8	1.11	1.20	1.31	1.43	----	----	----	----	----		
9	1.09	1.18	1.28	1.40	----	----	----	----	----		
14	1.05	1.14	1.25	1.37	----	----	----	----	----		
16	----	----	----	1.41	----	----	----	----	----		
18	----	----	----	1.37	----	----	----	----	----		
22	1.00	1.10	1.21	1.35	----	----	----	----	----		
23	----	----	----	1.34	----	----	----	----	----		
24	----	----	----	1.38	----	----	----	----	----		
25	----	----	----	1.44	----	----	----	----	----		
26	1.12	1.21	1.30	1.42	----	----	----	----	----		
27	----	----	----	1.42	----	----	----	----	----		
29	----	----	----	1.40	----	----	----	----	----		
Averages	1.07	1.17	1.27	1.39	----	----	----	----	----		
Departures	+.02	+.03	+.02	+.02	----	----	----	----	----		

LINCOLN, NEBR.

	Air mass: 4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
										Mb.	Mb.
June											
5					1.30	1.08	0.92	0.79	0.69	10.2	12.7
6					1.29	1.06	.92	.82	.71	14.6	16.5
9					1.28	1.01	.82	.67	.56	8.7	10.2
26					1.29	1.06	.86	.73	.62	11.0	9.8
30					1.29	1.06	.90	.79	.69	11.8	9.8
Averages					1.29	1.05	.88	.76	.65		
Departures					-.06	-.04	-.02	-.01	-.01		

MADISON, WIS.

	Air mass: 4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
										Mb.	Mb.
June											
1	0.80	0.88	0.99	1.14	1.25	1.03	0.79			9.1	7.2
6	.55	.66	.80	.98	1.28					13.7	18.3
7				.91	1.23					14.8	17.0
9	.36	.44	.60	.81	1.18					19.0	20.4
19	.47	.59	.83	1.06	1.29					11.4	10.2
16	.59	.66	.77							23.4	21.1
20	.74	.80	.84	.88						13.7	15.8
21	.47	.52	.63		1.05					10.6	17.7
22	.44	.55	.70	.88						19.6	23.4
26	.75	.87	.99	1.11	1.25					13.7	12.7
27	.81	.90	1.01	1.14	1.32					10.6	10.6
29	.75	.86	.96	1.11	1.32					11.0	11.0
30	.68	.76	.92	1.11	1.37					11.8	10.2
Averages	.62	.71	.84	1.01	1.28	1.03	.79				
Departures	.00	-.05	-.05	-.02	-.06	-.03	-.08				

BOSTON, MASS.

Date	Sun's zenith distance: A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a.m.	1:30 p.m.
	Air mass: 4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		

(No observations taken - instrument removed temporarily)

TACUBAYA, D. F., MEXICO

	Air mass: 3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83		

BLUE HILL, MASS.

	Air mass: 4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
										Mb.	Mb.
June											
2				1.10	1.37					12.9	9.1
5	.86	.97	1.08	1.22	1.47					9.3	8.3
6	.65	.78	.92	1.08						12.7	13.0
8				.93						17.0	16.5
9	.27	.34	.47	1.00	1.13	.95	.74	.56	.43	16.6	17.1
10	.33	.46	.67	.91	1.20					19.1	20.9
12	.87	.96	1.09	1.25	1.45		.98	.85	.75	8.2	8.2
16	.52	.62	.76	1.03	1.26					11.1	14.7
18	.90	1.00	1.11	1.26	1.46					6.9	6.8
22	.71	.82	.96							9.8	9.9
23				.86	1.20					13.1	16.5
26				1.10	1.29					15.8	18.6
28	.52	.66	.83	1.02						12.4	12.6
Averages	.63	.73	.88	1.06	1.31	.95	.86	.70	.59		
Departures	-.01	-.01	-.01	+.01	.00	-.10	+.01	.00	.00		

ALBUQUERQUE, NEW MEXICO

	Air mass: 4.08	3.26	2.44	1.63	*0.82	1.63	2.44	3.26	4.08		
										Mb.	Mb.
June											
25	0.88	0.98	1.12	1.26	1.40	1.25	1.18	1.08	1.00	5.0	4.-
26	.76	.88	1.01	1.20	1.37	1.29	1.12	.93	.87	5.2	4.-
27	.70	.76		1.12	1.32					8.2	5.
28	.78	.88	1.03	1.19	1.31	1.21	1.02	.92	.40	6.5	3.-
29	.43	.47	.60	1.01	1.28					7.9	4.-
30				.55						10.2	6.
Averages	.71	.79	.94	1.06	1.34	1.25	1.11	.98	.76		
Departures	-.11	-.11	-.09	-.11	-.09	+.03	.00	-.02	-.15		

* Extrapolated

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.

An explanation of Tables 30 and 33 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

Table 31.—Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass., during June 1950

Date	4	5	6	7	8	9	10	Averages	11	12	13	14	15	16	17	Averages	18	19	20	21	22	23	24	Averages
Langleys	158	253	248	249	239	250	211	230	251	238	250	226	213	250	188	231	257	91	270	151	259	246	218	213
Date	25	26	27	28	29	30	1	Averages																
Langleys	229	242	110	230	241	225	137	202																

Table 32.—Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during June 1950

Date	4	5	6	7	8	9	10	Averages	11	12	13	14	15	16	17	Averages	18	19	20	21	22	[illegible]	24	Averages
Langleys	145	192	163	164	165	160	159	164	173	191	203	149	161	172	138	170	171	124	173	150	181	164	157	160
Date	25	26	27	28	29	30	1	Averages																
Langleys	183	187	113	198	165	157	155	166																

Note.—Langley is the unit used to denote one gram calorie per square centimeter

SOLAR RADIATION DATA

Table 33-Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. JUNE 1950

	Honolulu, T.H.	Pearl Harbor, T.H.	Gainesville, Fla.	Apalachicola, Fla.	Lake Charles, La.	El Paso, Texas	Ft. Worth, Texas	La Jolla, Calif.	Charleston, S.C.	Griffin, Ga.	Phoenix, Ariz.	Riverside, Calif.	Santa Maria, Calif.	Albuquerque, N. Mex.	Hatteras, N.C.	Oklahoma City, Okla.	Raleigh, N.C.	Oak Ridge, Tenn.	Las Vegas, Nev.	Nashville, Tenn.	Stillwater, Okla.	Fresno, Calif.	Davis, Calif.	Washington, D.C.	Columbia, Mo.	Soda Springs, Calif.	Seabrook, N.J.	Grand Lake, Colo.	Salt Lake City, Utah
1950																													
June 4-----	643	499	489	502	541	720	735		412	324	786	652	(739)	770	272	654	202	400	803	632	624	768	605	358	796	821	278	715
June 5-----	616	599	645	740	538	801	169		262	588	794	618	648	843	510	368	773	762	801	757	491	767	594	734	817	785	660	820
June 6-----	651	636	358	596	430	716	387		734	680	618	152	639	749	787	103	741	714	706	673	506	709	627	667	794	366	697	760
June 7-----	591	566	197	266	602	760	700		520	309	823	720	813	809	778	750	753	607	----	656	691	807	661	691	754	220	700	760
June 8-----	683	559	477	308	668	798	521		294	--	820	696	826	842	679	---	505	318	774	406	159	799	636	733	682	842	733	820
June 9-----	620	687	620	749	360	793	659		191	503	806	691	(751)	821	786	307	475	256	796	367	480	706	502	703	237	624	676	849
June 10-----	637	584	722	581	675	674	638		369	527	815	677	689	757	712		513	203	773	388	142	786	576	386	708	641	578	844
Averages-----	634	590	544	535	545	752	544		469	489	781	601	729	793	646	542	467	467	786	554	518	763	600	610	681	614	617	795
Departures---	+23	+19	---	-47	+7	+10	-48		---	---	+5	+49	+57	---	--	50	---	-25	+8	-3	---	+76	-53	+91	+95	-24	---	+39
June 11-----	604	676	411	549	358	740	657		(723)	738	800	696	819	704	492	518	676	619	801	700	602	794	456	734	762	156	658	825
June 12-----	544	673	696	757	673	778	737		(604)	773	789	707	796	795	758	690	683	740	785	691	513	761	639	752	736	596	672	844
June 13-----	490	395	591	694	697	764	743		684	562	807	604	338	818	778	756	647	629	796	562	728	801	630	683	671	367	703	792
June 14-----	595	324	590	685	572	787	656		681	504	807	604	694	786	512	749	627	470	832	509	595	800	627	578	681	483	223	857
June 15-----	565	429	585	536	757	790	742		518	647	816	554	611	790	701	756	699	602	807	594	693	787	597	367	768	669	130	797
June 16-----	520	511	602	628	700	694	767		584	683	803	483	533	750	702	732	549	642	829	621	699	791	615	326	636	698	432	745
June 17-----	549	574	675	716	540	710	745		711	730	812	593	760	591	640	-	644	555	821	507	684	793	648	709	360	776	638	846
Averages-----	552	512	593	652	614	752	721		644	662	805	606	650	748	655	700	646	608	810	598	673	790	602	593	659	535	494	815
Departures---	-2	-16	---	+13	+32	+10	+64		---	---	+17	+12	-25	---	---	+53	---	+64	+10	+84	---	+78	-110	+89	+80	-70	---	+42
June 18-----	513	535	634	740	669	774	749		590	694	815	659	795	792	493	755	676	---	799	596	660	797	628	721	702	799	717	809
June 19-----	568	562	710	678	430	783	756		684	550	817	645	741	795	692	703	585	580	786	577	433	766	625	318	126	791	211	534
June 20-----	488	512	699	684	99	730	697		573	459	781	594	770	787	516	596	535	569	774	529	428	754	606	436	481	782	318	735
June 21-----	582	518	469	754	592	705	615		760	551	743	619	618	771	698	678	545	227	783	347	651	787	627	380	753	780	449	551
June 22-----	378	453	631	728	666	425	482		736	572	730	693	636	400	106	642	394	251	793	337	570	768	643	444	678	825	533	521
June 23-----	417	415	699	679	688	769	468		701	706	637	633	325	768	377	502	640	609	796	675	616	796	662	566	528	524	660	796
June 24-----	395	483	654	745	741	795	734		718	---	790	472	819	783	663	---	716	710	823	652	698	831	660	630	529	642	537	708
Averages-----	477	497	642	715	555	712	643		681	589	759	617	672	728	549	647	584	491	794	531	580	786	636	499	542	735	489	665
Departures---	-52	-32	---	+89	-38	-17	-19		---	---	-9	+12	-19	---	---	-16	---	-75	---	-13	---	+64	-57	-3	-18	+32	---	-42
June 25-----	509	630	660	694	713	769	767		712	---	784	694	827	800	675	775	517	535	826	619	707	819	634	492	783	840	468	821
June 26-----	670	721	742	---	726	762	742		(724)	---	805	675	(814)	790	435	750	742	714	793	692	673	819	644	728	628	816	717	708
June 27-----	669	627	615	---	723	(751)	694		695	698	773	691	801	714	730	726	717	702	800	700	617	808	640	682	824	822	688	616
June 28-----	651	556	580	---	606	(707)	679		652	621	719	684	819	790	594	557	678	735	799	664	624	783	624	752	381	798	725	553
June 29-----	435	537	194	---	662	737	158		713	677	689	656	794	689	444	306	282	633	778	620	422	763	624	280	850	709	405	728
June 30-----	662	487	512	---	495	704	681		328	---	766	635	552	723	293	739	516	648	677	718	710	758	608	639	771	853	556	715
July 1-----	684	701	407	---	611	739	749		517	757	717	625	771	556	338	745	708	744	---	618	666	735	604	626	500	803	522	633
Averages-----	611	608	530	---	648	738	639		621	688	750	666	768	723	501	657	594	673	779	662	631	784	625	600	677	806	583	682
Departures---	+27	+33	---	---	+49	+21	-9		---	---	+20	+71	+36	---	---	+23	---	---	+32	+111	---	+68	-87	+72	+77	+17	---	+32

Accumulated Departures January 1 to July 1 1950

	-238	+189	---	---	---	---	---		---	---	---	-2219	---	---	---	---	---	---	---	+455	---	10059	-2415	-2765	+1484	679	---	+686

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Table 33-Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.-(Cont'd)

	New York, N.Y.	State College, Pa.	Lincoln, Nebr.	Newport, R.I.	Put-in-Bay, Ohio	E. Wareham, Mass.	Blue Hills, Mass.	Boston, Mass.	Medford, Oreg.	Amherst, Mass.	Lynn, Mass.	Ithaca, N.Y.	Twin Falls, Idaho	Albany, N.Y.	E. Lansing, Mich.	Madison, Wisc.	Boise, Idaho	Portland, Me.	Toronto, Ontario	Ottawa, Ontario	North Head, Wash.	Caribou, Me.	Spokane, Wash.	Summit, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska	MacKenzie
1950																												
June 4-----	496	780	794	293	817	229	412	393	771	567	425	770	748	762	641	677	741	444	729	552	430	462	565	650	594	303	663	32
June 5-----	663	595	765	753	753	690	759	695	804	696	730	746	714	777	567	772	592	719	586	795	714	699	594	691	720	249	732	26
June 6-----	554	698	770	719	768	676	712	649	771	584	541	546	586	582	625	744	405	701	542	418	607	534	258	64	529	619	655	20
June 7-----	583	673	722	708	750	653	715	621	354	668	530	709	318	701	620	689	159	640	623	609	163	589	181	111	553	610	343	28
June 8-----	594	684	589	687	739	620	655	600	784	609	600	650	423	609	616	689	411	581	576	613	685	650	417	317	304	731	532	56
June 9-----	626	612	757	765	470	682	695	608	308	656	605	662	704	690	301	582	735	679	567	654	547	310	733	390	292	715	322	47
June 10-----	546	390	767	612	589	538	576	534	622	483	598	350	451	388	642	746	554	600	379	254	513	447	741	794	744	536	473	30
Averages-----	580	633	738	648	698	584	646	586	631	609	575	633	563	644	573	700	514	623	572	556	523	527	498	431	534	538	532	34
Departures---	+85	+98	+222	+94	+114	+57	+117	+97	---	---	---	+98	-14	+90	+101	+182	---	+56	+35	---	---	+18	-48	-19	---	---	+25	--
June 11-----	725	762	605	676	816	508	669	639	157	729	687	767	717	750	610	742	454	628	720	737	207	637	531	639	691	417	538	34
June 12-----	662	594	680	795	647	733	793	719	374	762	771	754	408	811	552	591	524	769	641	760	347	839	505	(413)	660	509	491	46
June 13-----	587	656	689	721	195	662	697	620	745	642	608	497	697	528	129	543	770	703	192	473	573	739	131	510	676	423	558	63
June 14-----	72	162	638	377	521	470	531	476	683	323	558	90	603	256	494	537	664	698	481	264	358	281	279	466	571	142	620	50
June 15-----	103	342	677	643	662	586	518	542	674	652	619	496	641	686	427	278	420	714	639	557	393	531	689	534	158	175	497	56
June 16-----	368	242	496	722	608	683	(749)	664	355	647	681	497	574	590	443	516	678	688	343	390	484	702	664	290	801	516	710	51
June 17-----	603	667	213	476	616	410	(528)	501	746	532	505	282	653	470	598	706	660	338	625	370	221	121	326	133	523	740	462	71
Averages-----	446	489	571	630	581	579	641	595	534	612	633	483	613	584	465	559	596	648	520	507	369	550	446	426	583	417	554	53
Departures---	-31	+21	+31	+108	+49	+48	+138	+92	---	---	---	-27	---	-3	+48	+58	---	+22	-15	---	---	+29	-43	-14	---	---	+40	--
June 18-----	690	562	368	694	260	702	778	729	782	764	779	550	708	752	161	120	765	753	549	654	416	374	576	561	705	531	597	68
June 19-----	59	202	576	118	485	166	225	194	798	177	231	140	671	126	242	501	755	370	556	683	---	622	671	655	530	506	631	55
June 20-----	164	394	579	666	661	525	741	659	362	594	534	483	700	590	490	448	710	735	633	641	258	759	705	729	610	388	546	31
June 21-----	365	535	730	396	508	342	340	285	691	358	363	401	185	473	632	586	542	472	685	730	451	256	324	319	444	370	557	70
June 22-----	548	669	689	757	678	678	769	696	825	692	728	551	750	706	578	552	781	702	142	315	320	661	572	182	487	193	574	65
June 23-----	566	610	723	726	661	655	728	631	390	661	661	641	424	698	413	306	729	632	508	617	523	412	766	639	365	196	576	36
June 24-----	475	329	647	538	586	466	525	409	644	406	451	402	410	417	450	308	254	416	575	398	542	118	346	261	574	347	676	33
Averages-----	410	472	617	556	549	505	587	515	642	522	549	453	550	537	424	403	648	583	521	577	418	457	566	478	531	362	594	51
Departures---	-74	-56	+51	+1	-42	-4	+46	+52	---	---	---	-60	-99	-39	-61	-128	---	+13	-9	---	---	+14	-11	-14	---	---	+67	--
June 25-----	716	552	746	514	795	458	517	475	772	539	458	538	750	502	649	585	753	496	696	---	315	262	652	162	---	---	306	--
June 26-----	655	729	772	751	586	697	778	673	613	730	562	691	605	738	642	701	660	687	529	---	642	451	677	676	---	---	590	--
June 27-----	596	566	619	205	625	183	230	263	731	459	---	397	679	646	463	790	756	86	533	---	261	87	806	679	---	---	470	--
June 28-----	740	660	669	689	721	658	714	616	801	712	582	666	707	685	465	387	724	455	496	---	623	336	706	737	---	---	729	--
June 29-----	434	408	716	631	677	592	645	592	786	479	498	271	721	561	574	786	748	631	487	---	479	548	727	716	---	---	745	--
June 30-----	454	741	760	540	527	429	539	554	748	588	645	742	591	577	331	794	716	665	609	---	642	293	770	554	---	---	718	--
July 1-----	557	703	639	421	774	289	301	222	811	596	265	752	640	805	548	379	719	249	621	---	733	188	775	(576)	---	---	711	--
Averages-----	594	623	703	536	672	472	532	485	752	585	502	580	670	645	525	632	725	467	567	---	528	309	730	586	---	---	610	--
Departures---	+105	+94	+105	-12	+74	-28	+16	-2	---	---	---	+70	+34	+33	+36	+83	---	-70	+52	---	---	-119	+35	+9	---	---	+147	
Accumulated Departures January 1 to July 1, 1950																												
	-3367	-1561	+3500	-2835	+1967	-3948	+1890	+2443	---	---	---	---	+1981	---	-245	+2002	---	---	+301	---	---	---	---	-847	---	---	+6363	--

Note.--Langley is the unit used to denote one gram calorie per square centimeter. Values in parentheses are interpolated.

Five new stations are being added to Table 33 beginning with this issue and will appear regularly in that table hereafter. A listing of these stations, together with a brief description follows:

1. Boise, Idaho: Latitude 43° 34'N.; longitude 116° 13'W.; elevation 879 meters; Brown integrating potentiometer; good exposure; occasional pollution by smoke from city 4 miles to the north-northwest; equipment located at Weather Bureau Airport Station.

2. Medford, Oregon: Latitude 42° 22'N.; longitude 122° 52'W.; elevation 405 meters; Brown strip-chart recorder; excellent exposure; sawmill and smudge smoke in vicinity; equipment located at Weather Bureau Airport Station.

3. North Head, Washington: Latitude 46° 18'N.; longitude 124° 05'W.; elevation 211 meters; Brown integrating potentiometer; good exposure; salt water spray only source of pollution; equipment located at Weather Bureau Office.

4. Santa Maria, California: Latitude 34° 56'N.; longitude 120° 25'W.; elevation 182 meters; Brown strip-chart recorder; excellent exposure; slight dust and salt pollution; slight smoke from oil refinery with southeast wind; equipment located at Weather Bureau Airport Station.

5. Spokane, Washington: Latitude 47° 37'N.; longitude 117° 31'W.; elevation 726 meters; Brown integrating potentiometer; aluminum shelter 5 feet to the north shades pyrheliometer excessively - recommended that instrument be raised 3 feet; pollution from city smoke; equipment located at Weather Bureau Airport Station.

Also, beginning with this issue, a new station, Albuquerque, N.M., is being added to Table 30 (normal incidence), and will appear regularly in future issues. This station also records total solar and sky radiation received on a horizontal surface, published in Table 33 of this section. The normal incidence equipment consists of an Eppley normal incidence pyrheliometer and a Leeds & Northrup Micromax potentiometer. A brief description of this station is contained in the April, 1950, issue of this publication.

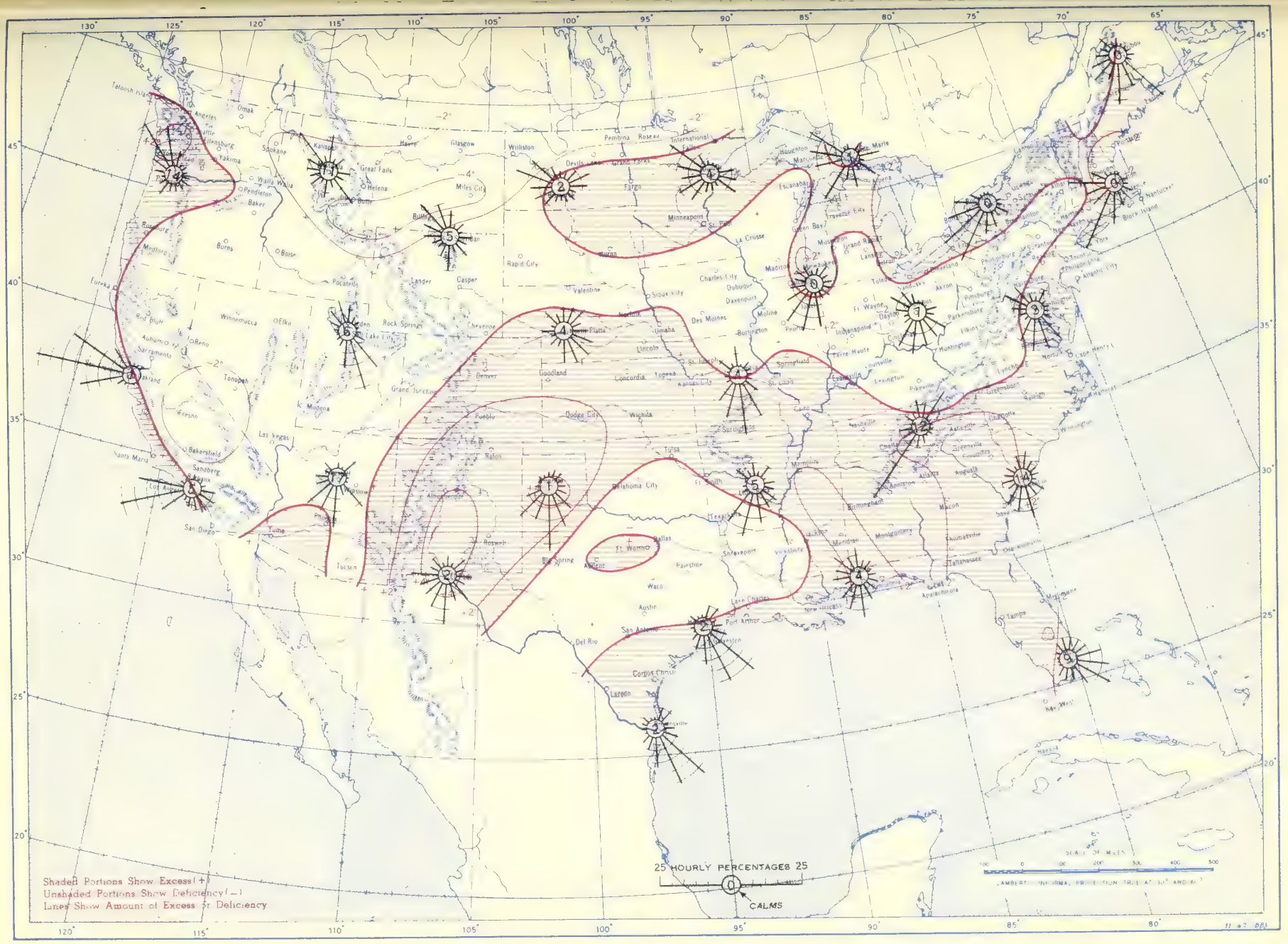
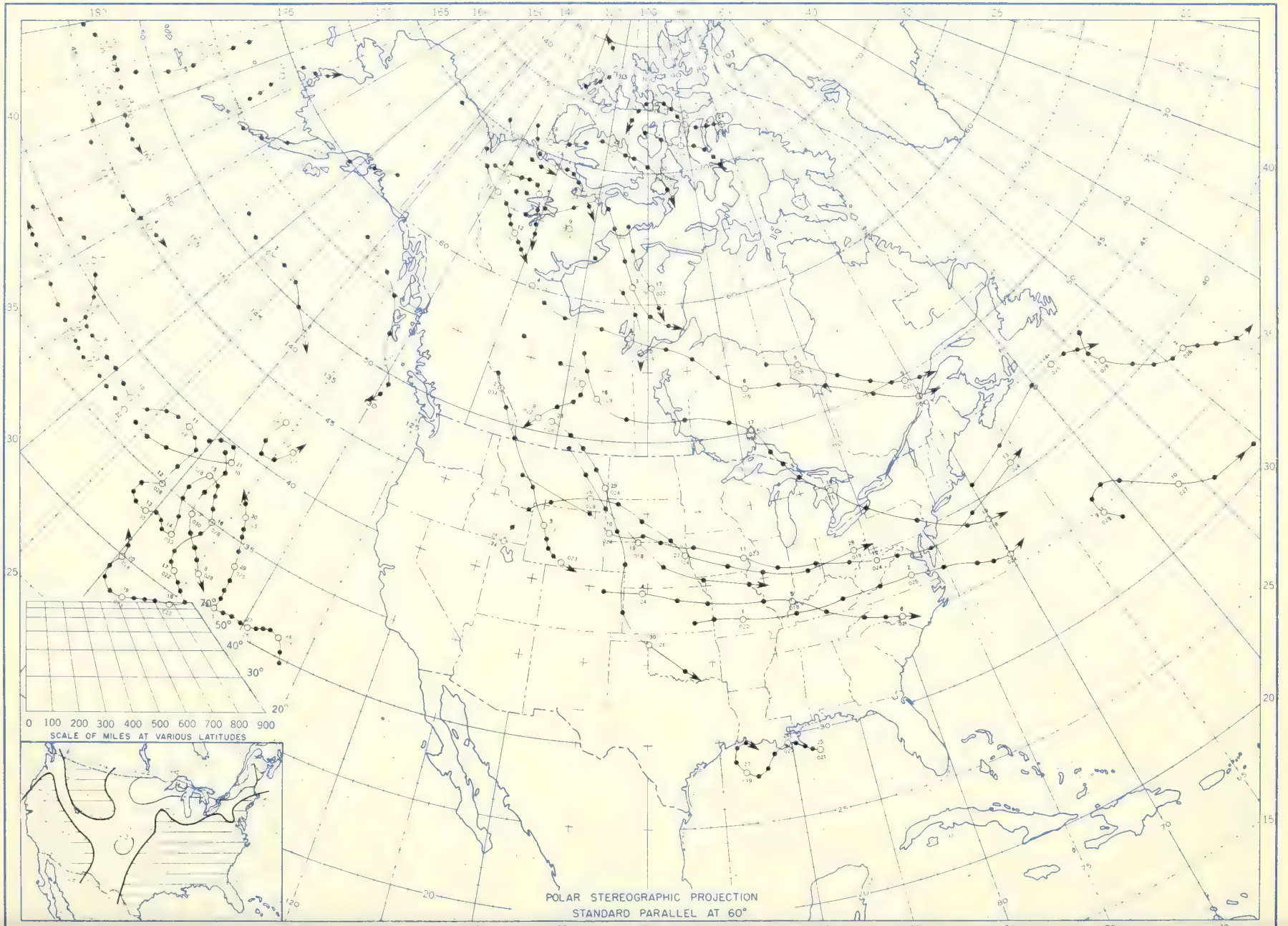
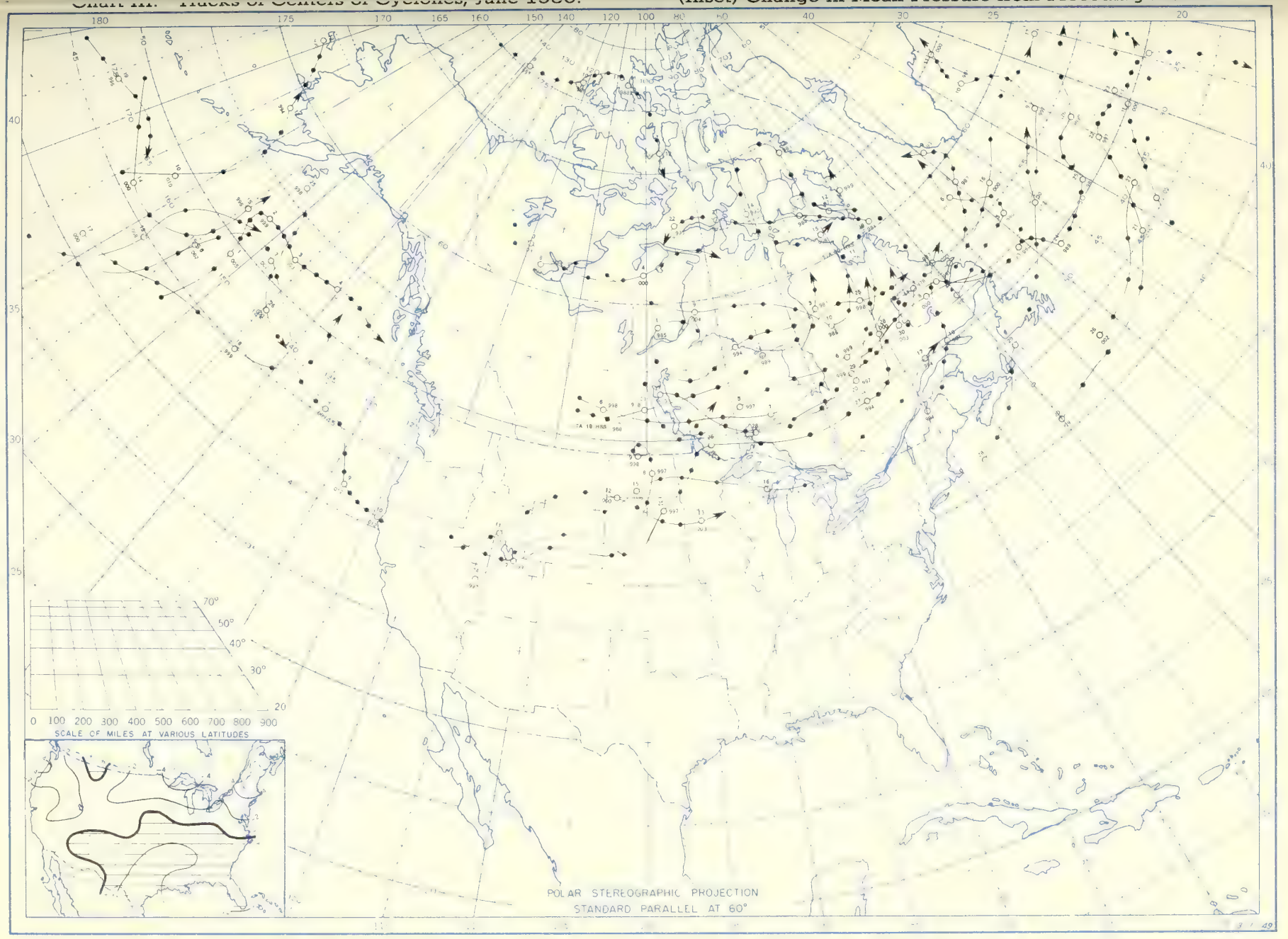

Shaded Portions Show Excess (+)
Unshaded Portions Show Deficiency (−)
Lines Show Amount of Excess or Deficiency
25 HOURLY PERCENTAGES 25
CALMS

Chart II. Tracks of Centers of Anticyclones, June 1950. (Inset) Departure of Monthly Mean Pressure from Normal

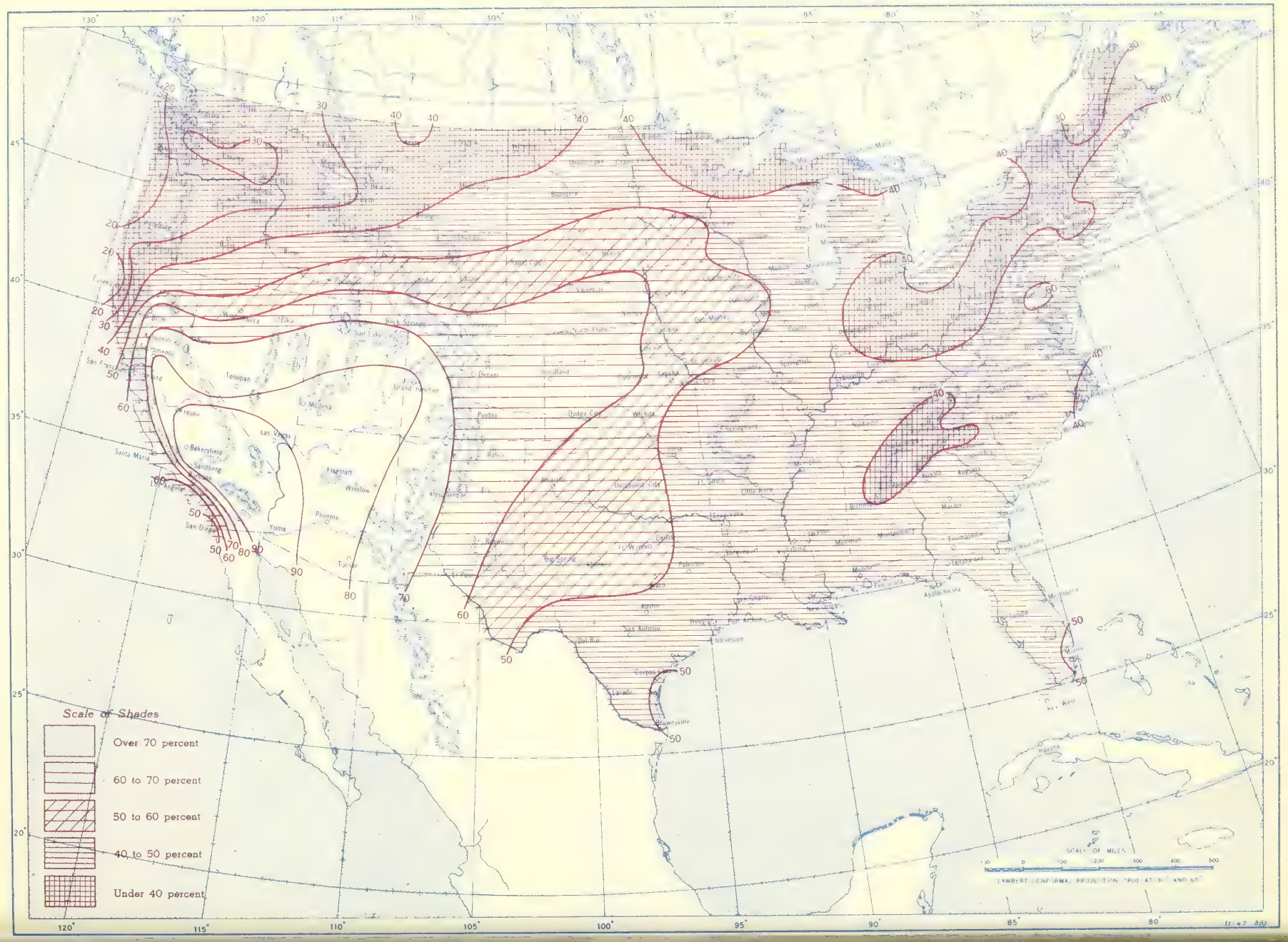


Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time) Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, June 1950



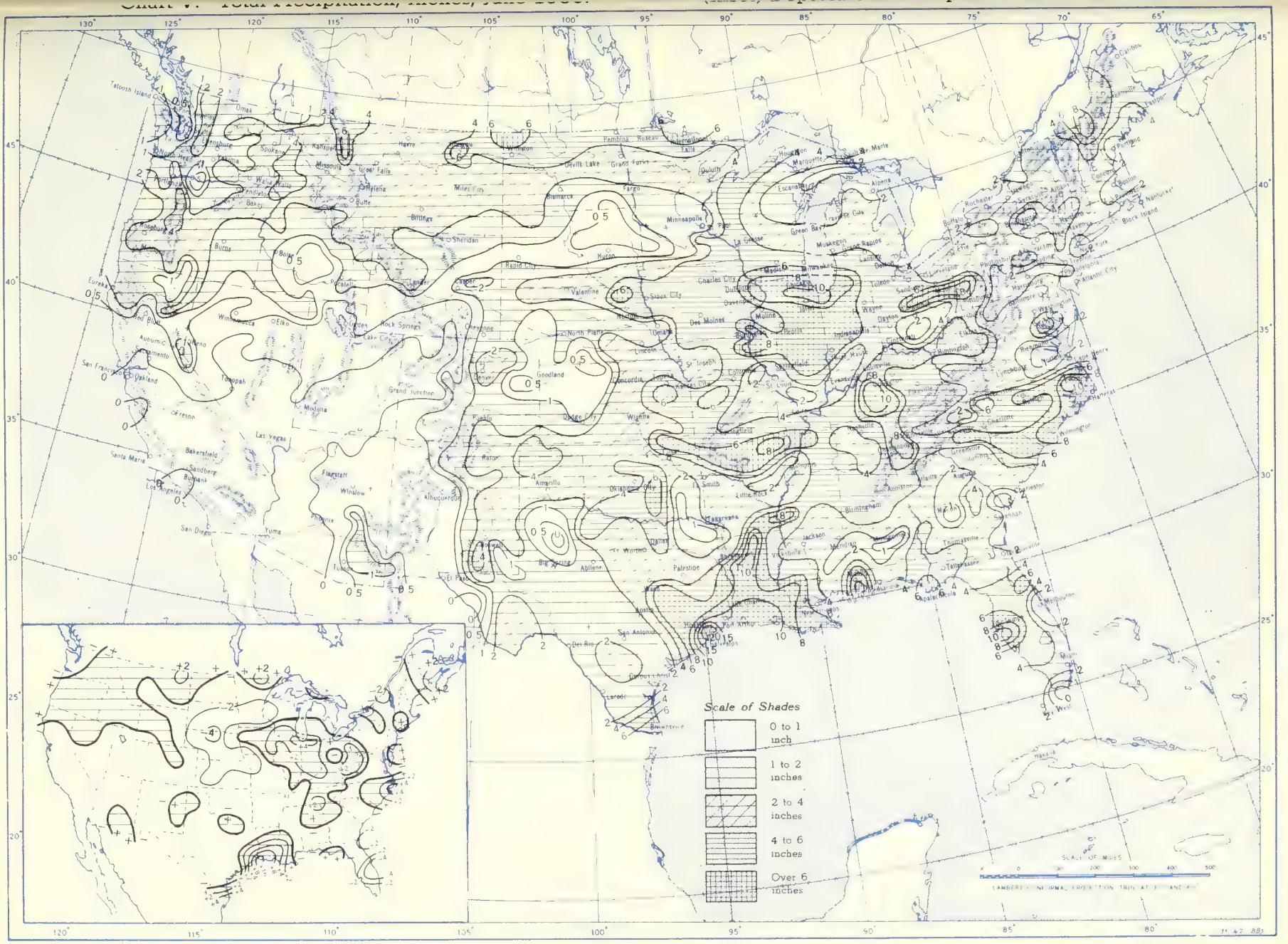
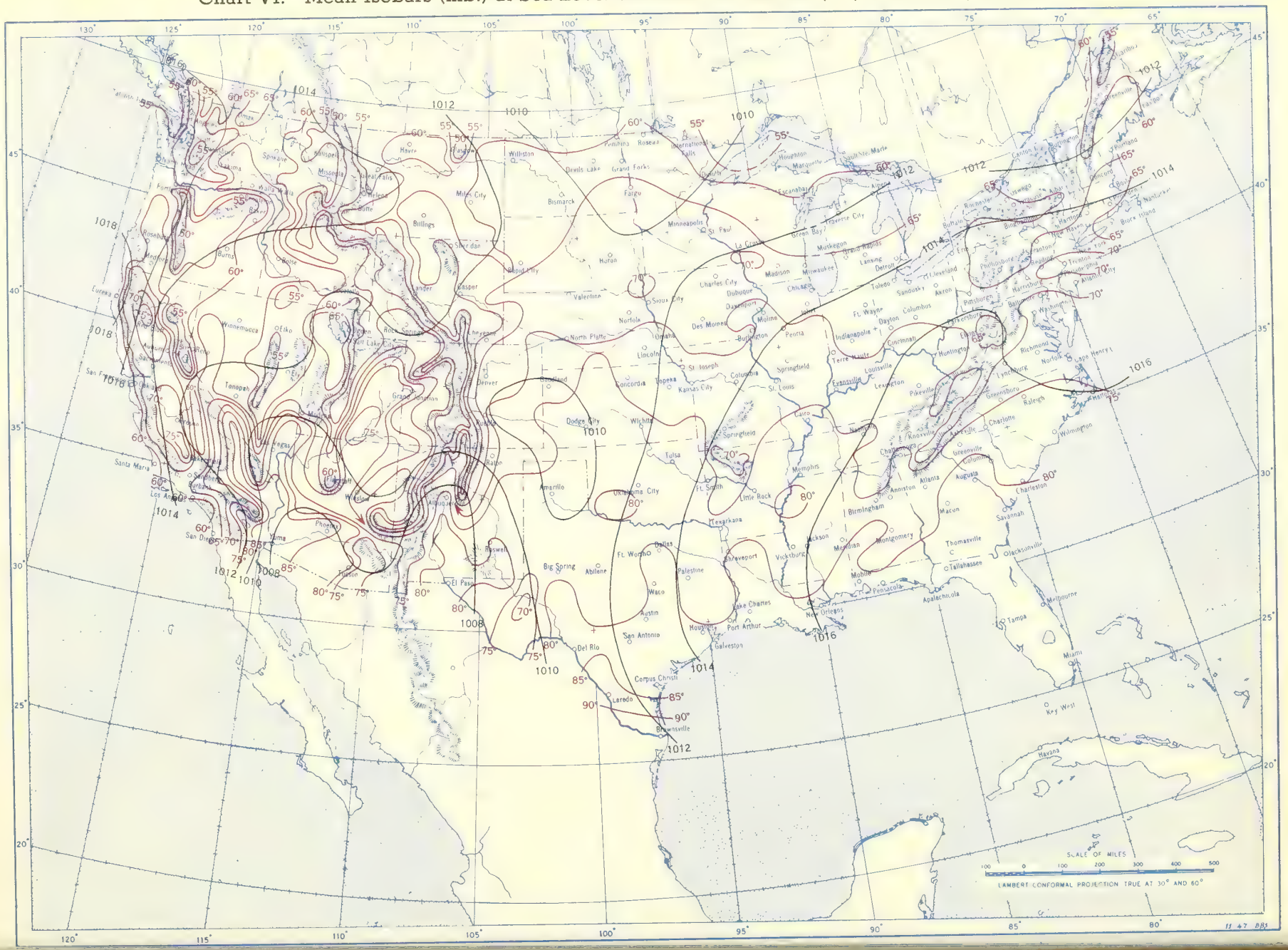
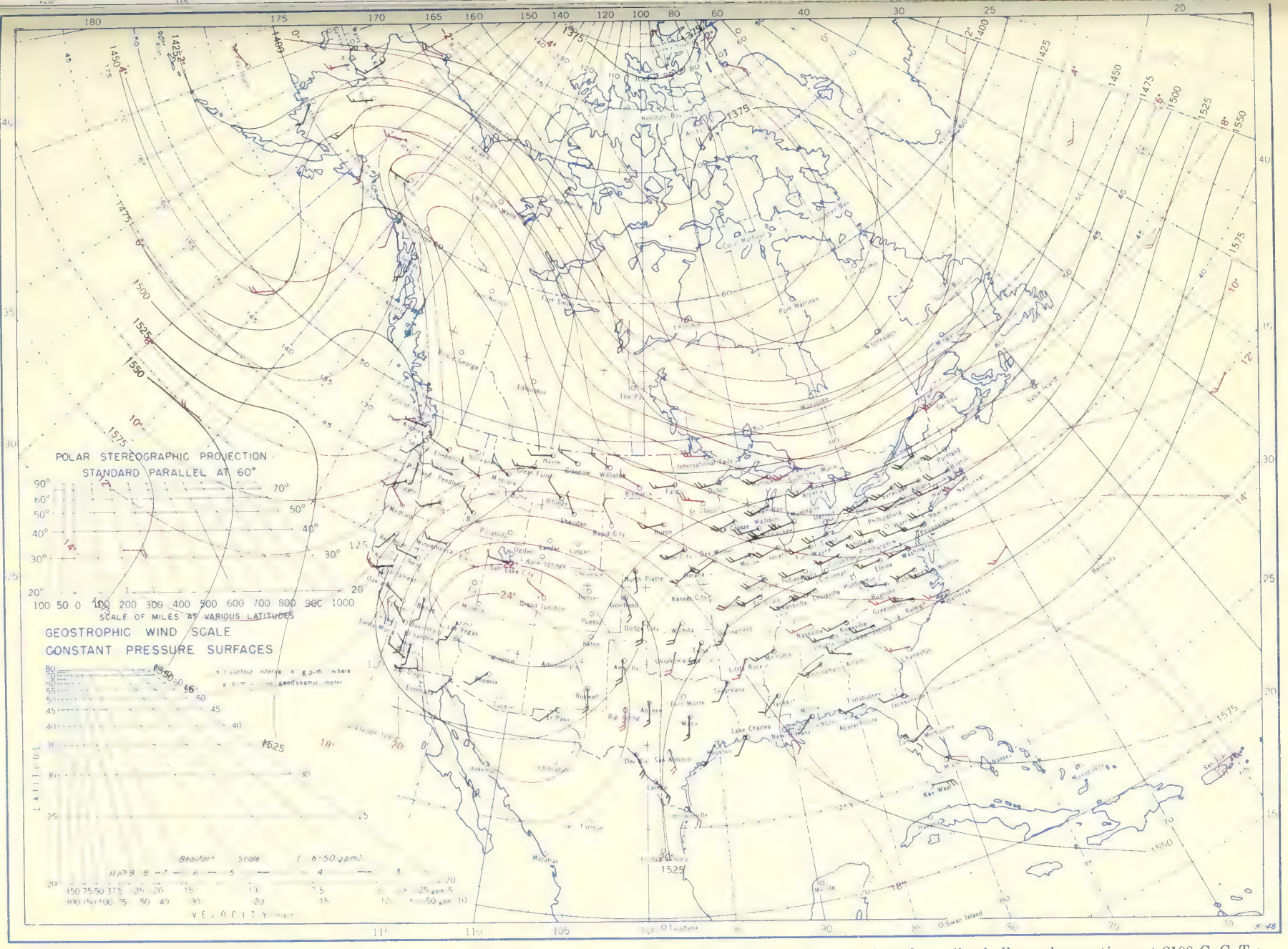

Scale of Shades
0 to 1 inch
1 to 2 inches
2 to 4 inches
4 to 6 inches
Over 6 inches

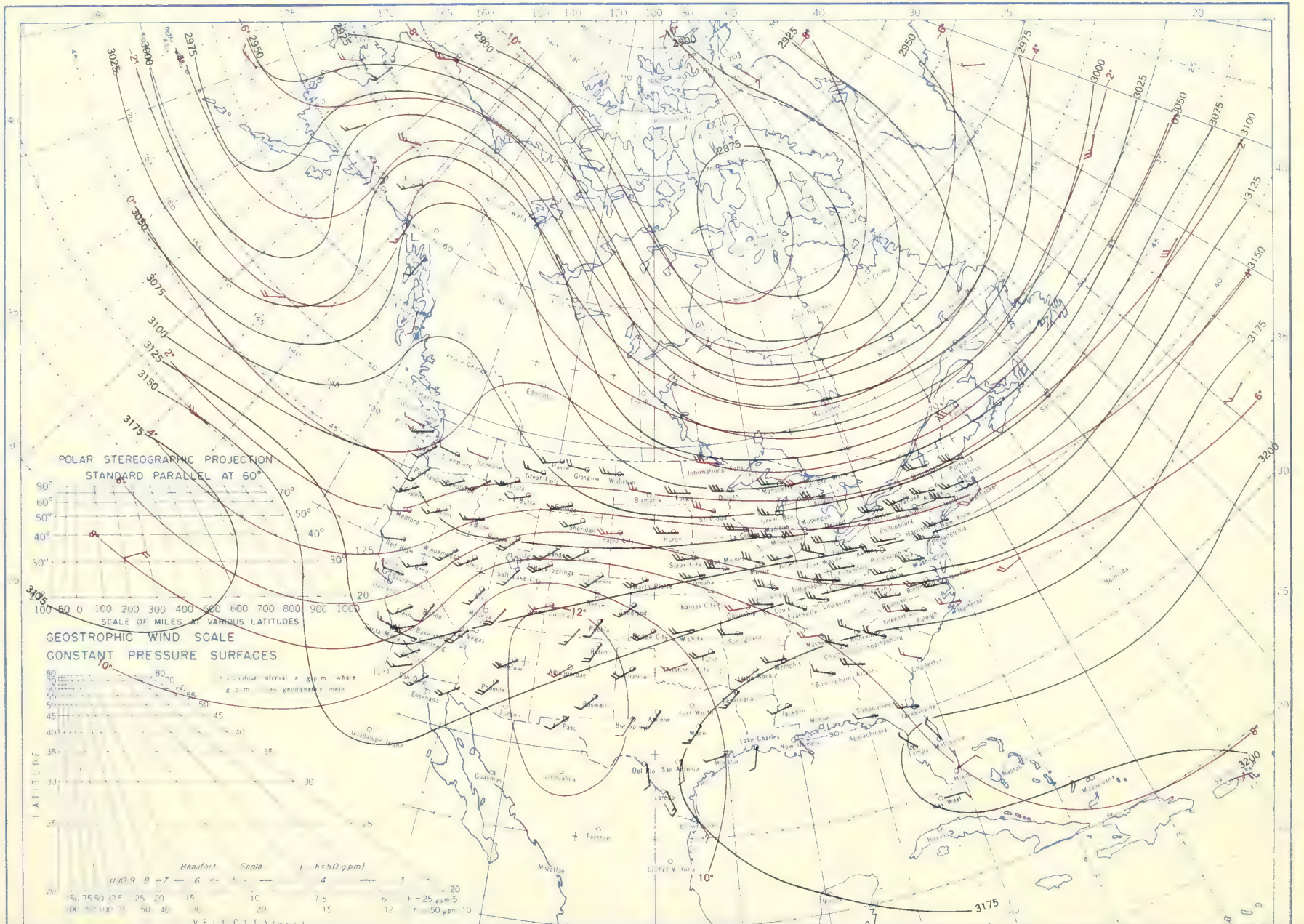
Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., June 1950



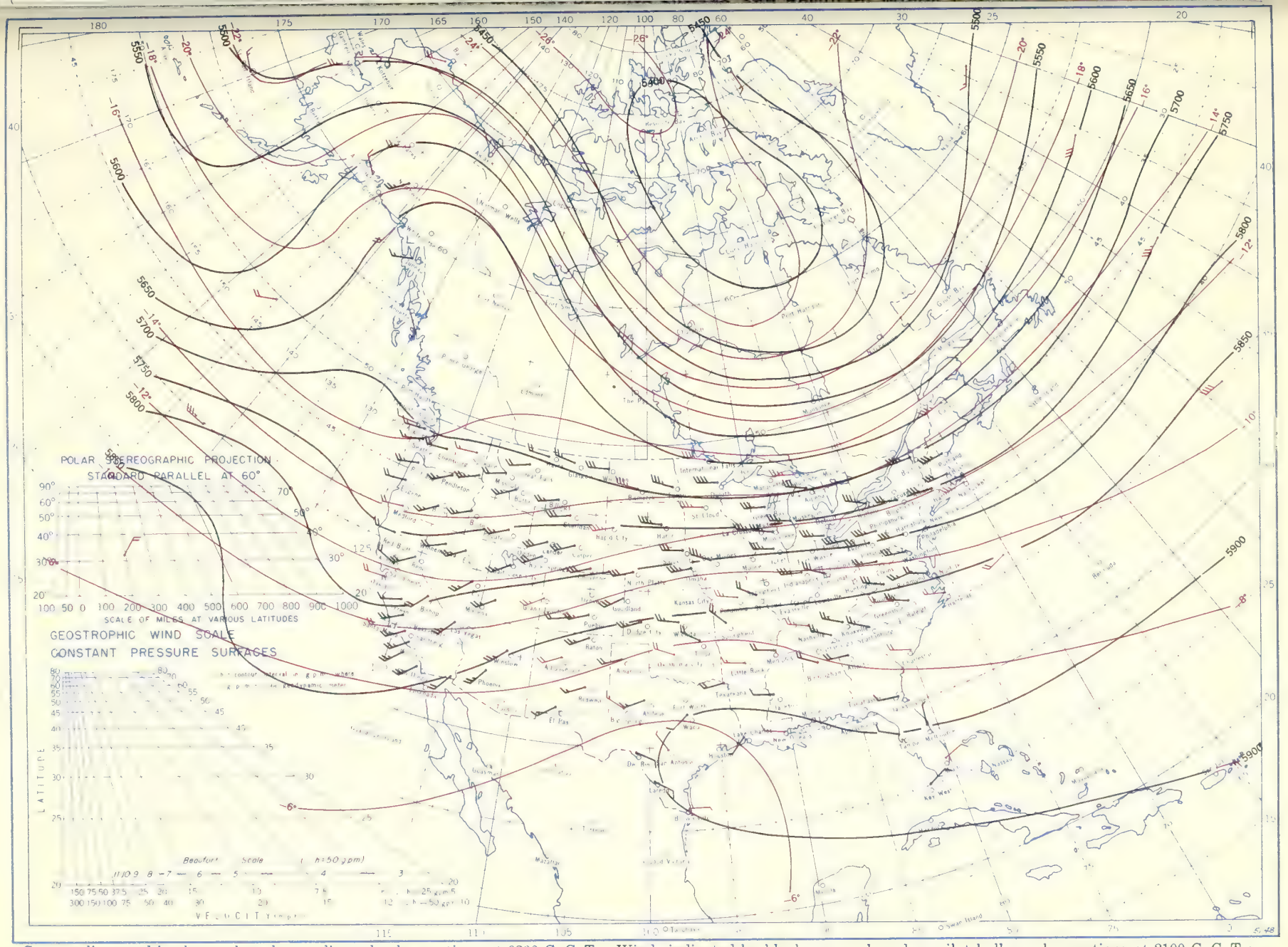


Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart IX, June 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)

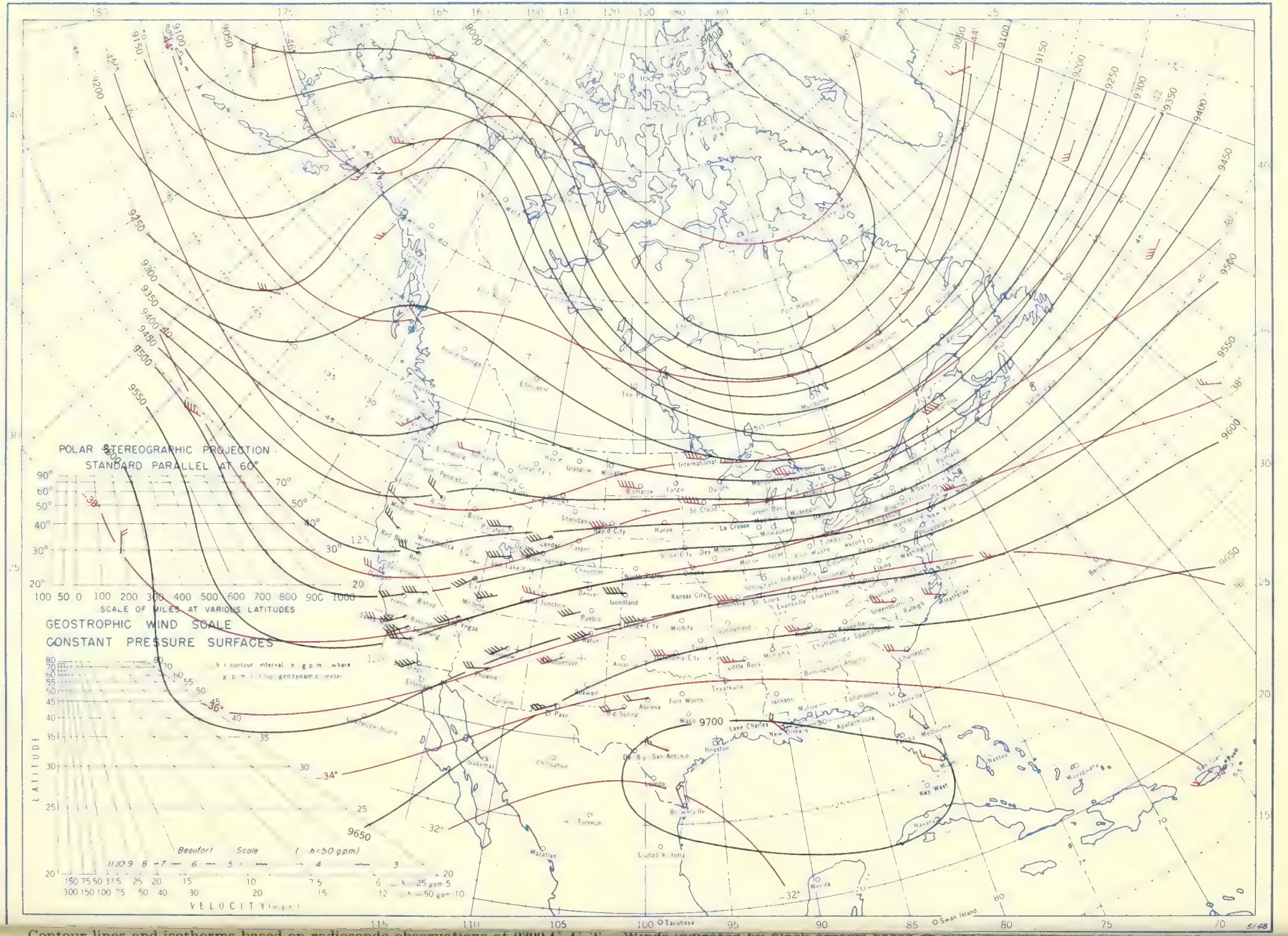


Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by flight of wind [illegible]



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, June 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 0300 G. C. T.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

JULY 1950

Volume I No. 7

WASHINGTON: 1950

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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume I No. 7

JULY 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

The nationwide average temperature for July 1950 was 71.9°, 2.3° below the 58-year mean, and only 0.2° above the lowest average on record in 1915. Temperatures averaged slightly above normal at most stations west of the Continental Divide, along the north Atlantic Coast as far south as Maryland, in most of New England, in extreme southeastern Texas, and along the southwestern coast of Florida. Elsewhere temperatures averaged below normal, with monthly minus anomalies ranging from 4° to over 6° in the central Great Plains and northern Rockies. In most of Montana, Wyoming, and the North Central States this was the coolest July since 1915, and the second coolest since 1893. It was the coolest July on record in Kansas.

Precipitation for the United States during July 1950 averaged 3.85 inches, or 1.08 inches above the 58-year mean, making this the wettest July on record. The previous wettest July was in 1915, with an average of 3.52 inches. In spite of the high average there were a few areas where precipitation was considerably below normal; namely, central California, the eastern portions of Washington and Oregon, southwestern Idaho, extreme eastern Montana, the Dakotas, northern Minnesota, southern Texas, and a belt along the New England Coast. Great excesses were accumulated at many stations in the southern half of the country and at several stations in the Great Lakes Region and the northern Rockies. The excess precipitation was most unusual in the central Great Plains. This was the wettest July on record in Kansas and Oklahoma, and the wettest in Nebraska since 1915. In Oklahoma it was the fourth wettest of any month on record and the number of days with measurable rain averaged 14 compared to a normal of 5, with one station reporting rain on 23 days. In Nebraska a 24-hour rainfall of 13.15 inches at York on the night of July 8 and 9 set a new record for the State. In Kansas there were unofficial rainfall measurements of 10 to 15 inches in 24 hours. Local monthly rainfall totals ranged up to 17.61 inches in Kansas, 18.83 in Oklahoma, 16.85 in Texas, 16.48 in Missouri, 16.04 in Nebraska, and 21.54 in Arkansas.

The highest temperature in the country during July 1950 was 125° at Cow Creek, Calif. on the 11th, and the lowest was 21° at Pearl, Colo. on the 31st. Other low temperatures were 33° at Iowa Falls, Iowa on the 26th, 32° at two stations in Michigan on the 1st, 28° at Grand Marais, Minn. on the 4th, 33° at McKeever, N.Y. on the 15th, 34° at two stations in Vermont on the 8th, and 34° at Pickens, W. Va. on the 1st. Maximum temperatures of 102° in Oklahoma and 95° in Indiana were the lowest extreme highest temperatures ever recorded during July in those States. Frequent rain and low daytime maximums were mostly responsible for the unusual July coolness.

A preliminary survey of severe storms shows a total damage of over 21 million dollars. Hailstorms were responsible for approximately one-half of this damage, with a total loss of about 11 million dollars from 154 storms. On the 1st, one of these storms caused damage of $12,000 to crops and $2,500,000 to other property at Manhattan and adjacent areas in Riley County, Kans. Hail, ranging up to 2 1/2 inches in diameter, smashed 16,000 windows in 11 greenhouses at Kansas State College, destroyed or damaged many roofs, and did extensive damage to automobiles. Hailstorms at Brady, Mont., on the 1st and Memphis, Texas, on the 16th caused crop damage of about 1 1/2 million dollars in each of these vicinities. Three tornado clouds were observed in Arizona where none had ever previously been reported during July, and only four in the preceding 34 years. On the 19th a tornado injured 30 persons and caused property damage of approximately $1,500,000 at Lima, Ohio. For more details see the "Severe Storms" tabulation in this publication.

Cool, showery weather and below normal sunshine slowed the development and maturity of warm weather crops, notably corn, cotton, soybeans, tomatoes, and tobacco, over practically the entire country, except the far Northeast, southern Texas, sections of the Gulf Coastal Plains, the Pacific States, and some adjacent areas. Most of the corn crop was about 2 weeks later than normal. Development of cotton in the middle and northern portions of the Main Cotton Belt was generally unsatisfactory, and weevil were numerous and damaging. Pastures were generally very good, except in most far western areas and some sections of the northern Great Plains.

CONDENSED CLIMATOLOGICAL DATA

Table 1 JULY 19

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	78.3	-2.0	Eufaula	99	21	Valley Head	48	1	8.99	+3.38	Citronelle	21.05	Bexar 2SE	2.8
Arizona	77.8	-1.9	3 Stations	118	†1	2 Stations	36	2	3.02	+.94	San Rafael Ranch	11.08	Wellton 6NE	T
Arkansas	76.8	-3.7	Camden 1	99	13	4 Stations	53	†1	7.10	+3.36	Mt. Magazine	21.54	Little Rock AP	1.8
California	76.6	+.7	Cow Creek	125	11	Boca	29	5	.14	+.03	Eagle Mountain	2.68	278 Stations	.0
Colorado	65.0	-2.2	Delta	103	1	Pearl	21	31	2.12	-.01	Wetmore 8SW	8.02	Spicer 2NE	T
Florida	80.3	-1.0	2 Stations	99	†14	Wauchula 2NW	50	31	7.91	+.42	Bradenton	24.47	Clewiston	1.6
Georgia	78.4	-1.9	Macon	101	19	Tallapoosa 2NW	48	1	6.95	+1.06	Fargo	12.80	Jackson Dam	3.0
Idaho	66.8	-1.6	Grand View	105	†5	2 Stations	25	†12	.64	+.03	Wallace	4.16	Crouch 2NNW	.0
Illinois	72.9	-3.5	Alton Dam 26	[illegible]	12	Marengo	43	†14	3.98	+.75	Gibson City	7.59	Grafton	..
Indiana	72.1	-3.5	New Castle	95	11	Wheatfield	43	1	3.78	+.45	Hobart	7.31	Nashville State Park	1.6
Iowa	69.7	-5.2	3 Stations	94	†1	Iowa Falls 1N	33	26	4.65	+1.05	Saratoga 2E	12.17	State Center	.6
Kansas	73.2	-6.4	Bison	103	1	Atwood	42	13	8.71	+5.76	Ripley	17.61	St. Francis 1SE	.7
Kentucky	73.4	-3.6	4 Stations	93	†3	Mammoth Cave Park	40	7	6.66	+2.47	West Liberty Water Wks.	12.21	Sadieville Water Wks.	2.9
Louisiana	80.3	-1.8	3 Stations	99	†2	2 Stations	55	1	6.33	+.45	Buras	12.77	Robeline	1.4
Maryland-Delaware	73.7	-1.6	Keedysville, Md.	97	†30	Oakland, Md.	41	7	4.45	+.09	Princess Anne, Md.	9.00	Frederick 3E, Md.	1.3
Michigan	65.8	-3.2	Ionia State Hosp.	93	†11	2 Stations	32	†1	4.04	+1.30	St. Charles	8.59	Sault Ste. Marie	1.2
Minnesota	66.8	-3.2	Gull Lake Dam	94	30	Grand Marais Coast	28	4	3.49	+.19	Harmony	10.71	Moorehead St. Teach.	.7
Mississippi	78.9	-2.2	Collins	99	21	2 Stations	50	1	7.49	+2.42	Leakesville	14.95	Tunica	1.9
Missouri	72.8	-4.9	Camdenton	[illegible]	[illegible]	Black 6NW	42	14	4.47	+.94	Waco	16.48	Sullivan	.7
Montana	64.3	-3.4	Big Sandy	105	28	Yellowstone N.E. Ent.	27	12	1.70	+.25	Stanford 2NE	4.90	Cohagen	.3
Nebraska	70.2	-5.4	Franklin	104	1	Tryon	34	13	5.31	+2.24	York	16.04	Minatare 8N	1.6
Nevada	72.8	-.7	Overton	118	†1	Sheldon	25	29	.81	+.42	Geyser	3.46	3 Stations	.0
New England	68.5	-.7	Turners Falls, Mass.	96	30	2 Stations, Vermont	34	†8	2.56	-1.18	Danbury, Conn.	7.71	New Durham, N.H.	.3
New Jersey	73.2	-.7	Hammonton	99	31	Charlotteburg	43	22	5.19	+.43	Princeton Water Wks.	11.32	Bass River St. For.	2.0
New Mexico	71.6	-1.7	2 Stations	105	3	Selsor Ranch	33	23	4.35	+2.08	Portales	12.17	Bloomfield	.1
New York	68.5	-1.3	Richland	98	15	McKeever	33	15	3.78	-.16	Cross River	9.75	Beaver Falls	1.1
North Carolina	75.7	-1.2	2 Stations	97	†20	Mt. Mitchell	41	9	8.61	+2.57	Belhaven	20.10	Hickory CAA AP	1.4
North Dakota	66.1	-2.9	Grafton State School	100	29	Medora TRNMP	36	22	1.92	-.53	Hannah	5.84	Van Hook	.3
Ohio	70.8	-2.8	2 Stations	93	†3	Mansfield 6W	41	14	4.30	+.50	Portland Dam 21	8.94	2 Stations	1.7
Oklahoma	76.6	-5.7	do	102	†16	Taloga	44	14	9.15	+6.36	Wewoka	18.83	Lawton 2N	3.4
Oregon	66.8	-.1	The Dalles	105	24	Fremont	24	21	.30	-.14	Otis	2.15	33 Stations	.0
Pennsylvania	69.2	-2.9	2 Stations	95	†30	Kane 1NNE	38	15	4.69	+.36	Lehighton	9.08	New Park	.7
South Carolina	78.1	-1.8	Miley	99	20	Caesars Head	56	†9	7.86	+1.89	Long Creek 2N	15.77	Camden	1.1
South Dakota	68.0	-5.1	Vivian	103	29	Hardy Ranger Sta.	24	†13	2.51	+.09	Academy	8.42	Longvalley	.1
Tennessee	75.0	-2.8	Samburg Wildlife Ref.	95	3	Gatlingburg 2SW	45	[illegible]	6.82	+2.29	Mount Le Conte	12.68	Sugar Hill	1.7
Texas	80.4	-2.6	Llano	108	30	Mount Locke	48	17	4.13	+1.55	Lake Kickapoo	16.85	San Benito	.0
Utah	69.3	-2.6	Zion N.M.	115	1	Clear Creek	25	31	1.20	+.24	Beaver Canyon PH	5.55	Partoun	.1
Virginia	73.5	-1.8	Buggs Island Dam	98	21	Burkes Garden	41	[illegible]	5.76	+1.05	Norfolk WB AP	12.83	Darwin	1.3
Washington	66.3	-.4	Malott	107	3	Bumping Lake	28	31	.78	+.13	Mt. Baker Lodge	3.90	4 Stations	.0
West Virginia	70.3	-2.8	3 Stations	94	†30	Pickens #1	34	†1	5.77	+1.12	Clay #1	11.02	Spruce Knob	1.9
Wisconsin	66.4	-3.7	Stoughton	94	27	3 Stations	35	†7	5.49	+2.07	Steuben	13.88	Ellsworth	2.0
Wyoming	62.5	-3.8	2 Stations	100	10	Bondurant	23	31	1.58	+.26	Phillips	4.69	Bairoil	.1
Puerto Rico	78.1	-.4	Ponce (2)	96	†11	Guineo Reservoir	56	12	4.32	-1.85	Rio Piedras	14.31	Santa Rita	.0

† Other dates also

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: 01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	Sky cover (sunrise to sunset): Clear	Sky cover (sunrise to sunset): Partly cloudy	Sky cover (sunrise to sunset): Cloudy	Sky cover: tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb	Mb	°F	°F	°F	°F.	°F.		°F.				°F	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
ALABAMA																																
Anniston	599	996.6	1018.3	88	67	77.4	----	94	2	51	1	8	0	69	--	-----	-----	4.83	20	14	0.0	0	4.9	SW	--	---	--	--	--	--	---	
Birmingham	610	995.6	1017.8	87	68	77.6	-2.1	93	20	54	1	10	0	68	77	13.70	+8.53	3.15	17	13	0.0	0	6.0	SSW	34	SW	5	3	11	17	7.0	58
Mobile CO	----	-----	-----	--	--	----	---	---	--	---	--	--	--	--	--	-----	-----	-----	--	--	---	---	---	---	35	SE	11	--	--	--	---	39
Mobile	10	1009.8	1018.0	87	71	79.0	----	92	1	67	10	7	0	72	85	14.16	-----	3.16	20	22	0.0	0	7.8	S	--	---	--	1	10	20	7.6	--
Montgomery CO	----	-----	-----	--	--	----	----	---	--	---	--	--	--	--	--	-----	-----	-----	--	--	---	---	---	---	21	SW	26	--	--	--	---	54
Montgomery	201	1010.5	1017.7	89	69	79.4	----	96	2	60	1	17	0	70	78	7.92	-----	2.71	14	15	0.0	0	5.4	SSW	--	---	--	4	13	14	6.9	--
ARIZONA																																
Flagstaff	6993	791.1	1017.4	78	51	64.2	----	88	2	45	12	0	0	49	65	3.42	-----	1.38	16	19	T	0	5.6	WSW	--	---	--	3	10	18	7.5	--
Grayson CO	4999	849.6	1014.2	87	60	73.7	----	99	2	56	9	10	0	55	59	5.20	-----	2.64	11	18	0.0	0	3.8	SW	--	---	--	6	10	15	6.2	--
Phoenix CO	----	-----	-----	--	--	89.4	-.4	---	--	---	--	--	--	--	--	-----	-----	-----	--	--	---	---	---	---	29	E	22	--	--	--	---	78
Phoenix	1083	971.2	1008.8	103	78	90.5	----	115	2	68	12	30	0	61	44	.76	-.31	.35	7	7	0.0	0	5.8	W	--	---	--	12	8	11	4.9	--
Prescott	5014	849.0	1013.1	86	61	73.3	----	99	1	56	12	9	0	52	57	9.61	-----	3.08	16	20	T	0	7.8	ENE	--	---	--	6	12	13	6.2	54
Tucson	2585	924.5	1010.5	94	72	82.8	-3.6	106	1	67	30	22	0	61	55	3.72	+1.48	1.51	16	16	0.0	0	6.5	SE	51	NE	1	1	15	15	7.3	66
Winslow	4880	852.4	1010.3	90	64	77.0	+.3	99	1	58	26	17	0	50	46	2.72	+1.11	1.47	11	14	0.0	0	8.8	SW	--	---	--	4	15	12	6.4	--
Yuma	203	1004.1	1009.0	105	79	91.8	----	113	2	73	8	29	0	63	44	.76	-----	.39	5	5	0.0	0	11.8	SSE	35	SE	5	17	11	3	3.1	86
ARKANSAS																																
Fort Smith	458	999.0	1015.2	87	69	77.5	-4.0	95	3	60	1	9	0	69	79	9.50	+6.13	4.31	17	14	0.0	0	5.2	NE	29	W	17	1	5	25	8.5	60
Little Rock	257	1003.1	1015.9	88	70	78.8	-2.1	94	20	63	1	14	0	68	76	1.87	-1.63	.58	11	9	0.0	0	6.4	SW	24	NW	121	--	--	--	7.8	49
Texarkana	361	1002.7	1015.8	87	70	78.8	-4.1	93	21	61	1	13	0	69	79	5.25	+1.46	1.97	12	11	0.0	0	7.0	S	--	---	--	2	8	21	7.8	--
CALIFORNIA																																
Bakersfield	489	992.2	1009.9	102	70	86.1	+2.0	115	1	63	29	31	0	51	33	.03	+.02	.03	2	0	0.0	0	7.3	WNW	--	---	--	25	5	1	1.4	--
Beaumont CO	2589	924.1	1012.3	93	58	75.7	----	106	2	50	30	24	0	52	50	.26	-----	.25	2	6	0.0	0	6.2	WNW	--	---	--	23	5	3	2.4	--
Bishop	4108	873.0	1010.5	98	59	78.5	----	105	14	52	29	29	0	--	--	.23	-----	.13	2	9	0.0	0	----	---	--	---	--	18	8	5	3.6	--
Blue Canyon	5280	840.8	1011.2	81	60	70.4	----	89	2	51	11	0	0	40	34	.05	-----	.05	1	0	0.0	0	7.6	SSW	--	---	--	28	2	1	.7	--
Burbank	699	986.8	1012.8	85	62	73.8	----	95	2	58	20	6	0	59	66	T	-----	T	0	0	0.0	0	6.6	S	--	---	--	18	9	4	3.6	--
Eureka CO	43	1014.6	1016.9	60	51	55.4	-.1	66	8	46	11	0	0	--	--	.05	-.06	.03	3	0	0.0	0	6.7	---	30	N	30	11	5	15	6.1	47
Fresno	331	998.3	1010.0	100	65	82.4	+1.1	109	1	57	29	31	0	55	42	.02	+.01	.01	2	0	0.0	0	7.1	NW	21	NW	28	28	2	1	1.0	97
Los Angeles CO	----	-----	-----	---	--	73.3	+3.1	--	--	--	--	--	--	--	--	.01	0	-----	--	--	---	---	----	---	17	W	20	--	--	--	---	70
Los Angeles	312	1009.5	1013.3	75	63	68.8	----	80	9	59	1	0	0	60	77	.03	----	.02	2	0	0.0	0	5.2	WSW	--	---	--	11	13	7	5.2	--
Mt. Shasta CO	3543	892.3	1013.8	88	53	70.5	+2.6	96	24	42	29	12	0	47	46	T	-.14	T	0	1	0.0	0	6.9	NW	--	---	--	28	3	0	1.0	--
Oakland	3	1013.2	1013.6	73	55	64.3	+2.4	88	1	51	12	0	0	52	72	T	-.01	T	0	0	0.0	0	7.7	WNW	--	---	--	20	11	0	2.9	--
Red Bluff	341	997.3	1009.8	101	70	85.6	+4.8	114	2	62	28	31	0	47	29	0	-.03	0	0	0	0.0	0	7.9	SSE	20	NW	30	30	1	0	.3	99
Sacramento	25	1009.1	1010.5	93	58	75.6	+2.4	109	1	53	19	21	0	53	52	.01	+.01	.01	1	0	0.0	0	12.4	SW	31	SW	27	30	1	0	.5	99
Sandberg CO	4517	863.5	1012.1	86	63	74.0	----	100	1	54	18	6	0	39	34	.04	-----	.04	1	0	0.0	0	13.3	S	--	---	--	24	5	2	2.0	--
San Diego	19	1010.2	1013.4	76	64	69.7	+1.2	82	6	61	2	0	0	61	78	.08	+.05	.08	1	0	0.0	0	6.7	WNW	17	NW	11	8	16	7	5.6	54
San Francisco CO	52	-----	-----	--	--	----	----	---	--	---	--	--	--	--	--	-----	-----	-----	--	--	---	---	----	---	---	---	---	--	--	--	---	68
San Francisco	1	1012.5	1013.3	72	51	61.7	+2.4	83	2	47	6	0	0	51	76	T	0	T	0	0	0.0	0	14.7	NW	38	W	28	26	5	0	1.8	--
Santa Catalina	1568	957.0	1012.2	77	59	68.0	----	95	2	54	28	2	0	--	--	.03	-----	.03	1	0	0.0	0	----	---	---	---	---	18	9	4	3.5	--
Santa Maria	231	1005.4	1014.0	73	55	63.8	----	79	9	49	3	0	0	56	81	.62	-----	.62	1	1	0.0	0	6.3	W	--	---	--	9	19	3	4.6	--
COLORADO																																
Alamosa	7534	776.5	1017.8	78	47	62.5	----	86	1	41	22	0	0	--	--	.60	-----	.44	9	17	T	T	----	---	--	---	--	1	22	8	6.4	--
Colorado Springs	6175	814.4	1015.5	78	54	66.0	----	88	1	49	4	0	0	50	64	4.50	-----	1.06	18	23	T	T	9.9	NW	--	---	--	1	19	11	6.1	--
Denver	5221	838.5	1013.4	82	56	68.9	-2.3	91	10	50	23	3	0	48	54	.56	-.91	.24	8	13	0.0	0	7.8	S	40	W	16	5	20	6	5.8	65
Grand Junction	4849	859.5	1011.6	88	61	74.9	-2.8	97	1	57	8	15	0	44	38	1.00	+.39	.61	7	12	0.0	0	9.5	SE	47	N	14	14	11	6	4.8	76
Pueblo	4799	857.8	1012.9	86	59	72.4	-1.8	97	1	52	25	9	0	53	59	4.17	+2.23	1.02	18	19	1.0	1	7.0	SE	61	E	19	2	18	11	6.2	60
CONNECTICUT																																
Bridgeport	7	1016.3	1016.9	81	63	71.9	----	89	31	57	15	0	0	63	76	6.29	-----	1.71	14	9	0.0	0	7.8	SW	40	WSW	31	5	15	11	6.6	--
Hartford	15	1010.5	1016.3	82	60	71.4	-.2	90	30	52	15	2	0	63	76	4.09	-.28	1.48	12	6	0.0	0	5.6	SSE	34	SW	12	5	10	16	7.1	70
New Haven	6	1012.5	1016.3	80	62	70.7	+1.4	87	31	55	24	0	0	--	--	3.83	-.18	.83	15	9	0.0	0	5.8	---	28	W	18	5	14	12	6.6	69
DELAWARE																																
Wilmington	73	1013.5	1016.8	85	63	74.0	----	94	31	56	23	5	0	64	75	4.35	-----	1.79	12	7	0.0	0	6.3	WSW	--	---	--	5	9	17	7.1	--
FLORIDA																																
Apalachicola CO	13	1016.9	-----	86	75	80.4	-1.3	90	24	71	29	3	0	--	--	14.75	+7.01	5.86	15	13	0.0	0	7.0	---	22	S	11	6	9	16	7.0	44
Daytona Beach	33	1018.3	1019.9	90	71	80.3	0	95	27	68	22	20	0	73	84	5.56	+.07	1.76	12	21	0.0	0	8.6	ESE	30	SSW	10	12	10	9	4.9	--
Fort Myers	15	1019.0	1019.2	91	72	81.2	-.2	94	19	66	25	25	0	73	81	6.83	-1.33	2.27	17	21	0.0	0	6.6	SE	--	---	--	6	17	8	5.5	--
Jacksonville	18	1018.3	1019.3	91	73	82.2	-.9	97	22	70	2	21	0	71	77	10.68	+3.97	2.51	16	21	T	T	5.8	S	49	SW	1	3	12	16	7.1	56
Key West CO	9	-----	-----	--	--	----	---	---	--	---	--	--	--	--	--	-----	-----	-----	--	--	---	---	----	---	---	---	---	---	---	---	---	59
Key West	5	1018.0	1018.2	89	76	82.5	-.2	93	6	70	20	13	0	73	73	5.00	+1.72	1.54	16	14	0.0	0	12.3	E	--	---	--	6	18	7	5.4	--
Lakeland CO	214	-----	-----	89	72	80.3	-1.3	93	17	67	2	21	0	--	--	5.29	-2.65	1.36	18	18	0.0	0	----	---	--	---	--	2	20	9	6.2	--
Melbourne	22	1018.6	1020.0	89	71	80.2	-.7	96	27	67	8	9	0	73	83	3.95	-2.63	1.00	10	15	0.0	0	8.0	ESE	30	WNW	29	6	18	7	5.4	--
Miami CO	----	-----	-----	--	--	----	---	---	--	---	--	--	--	--	--	-----	-----	-----	--	--	---	---	----	---	---	---	---	---	---	---	---	77
Miami	8	1018.3	1019.0	89	74	81.4	----	94	31	69	10	9	0	72	75	7.99	-----	1.74	18	14	0.0	0	8.4	SE	30	ESE	2	8	17	6	5.2	--
Miami Beach	----	-----	-----	85	77	81.0	----	88	31	70	9	0	0	--	--	5.36	-----	1.26	16	--	0.0	0	----	---	--	---	--	17	11	3	---	--
Orlando	111	1015.6	1019.7	92	71	81.5	-.4	96	21	69	1	25	0	72	79	8.27	+.12	2.47	16	18	0.0	0	8.2	SE	45	SSW	10	5	19	7	5.9	--
Pensacola CO	----	-----	-----	--	--	----	-.4	91	22	70	10	7	0	--	--	-----	-----	-----	--	17	---	---	----	---	24	NW	28	3	10	18	7.5	64
Pensacola	13	1013.9	1017.7	87	74	80.4	----	--	--	---	--	--	--	73	--	7.71	-----	2.19	15	--	0.0	0	6.3	SSE	--	---	--	--	--	--	---	--
Tallahassee	64	1016.3	1018.8	88	71	79.1	-1.7	94	22	68	4	13	0	71	84	6.56	-.87	1.25	18	19	0.0	0	3.2	SE	--	---	--	1	9	21	7.6	--
Tampa	24	1018.0	1019.1	90	73	81.4	+.2	96	21	69	10	24	0	72	79	13.77	+5.82	3.25	19	23	0.0	0	7.3	E	38	S	20	4	16	11	6.3	54
West Palm Beach	14	1018.3	1019.2	92	75	83.5	----	97	28	68	10	28	0	73	75	4.04	-2.02	1.39	12	13	0.0	0	8.3	SE	--	---	--	2	18	11	6.1	--
GEORGIA																																
Albany	190	1011.9	1018.3	90	71	80.6	----	97	25	68	9	19	0	70	78	3.46	-----	.65	17	20	0.0	0	3.9	SE	32	WSW	27	6	9	16	6.9	--
Atlanta	977	977.3	1017.9	86	69	77.5	-1.6	94	4	62	1	7	0	68	79	7.39	+2.55	2.39	16	10	0.0	0	7.8	SW	40	S	26	4	12	15	6.8	45
Athens	798	1015.6	-----	87	68	77.5	-1.3	94	2	64	1	8	0	--	--	4.84	+1.36	1.45	15	12	0.0	0	----	---	--	---	--	4	11	16	6.8	--
Augusta	426	1013.5	1018.9	89	69	79.2	-2.1	94	21	66	9	20	0	70	79	12.16	+6.31	3.81	16	17	0.0	0	5.6	SW	--	---	--	2	15	14	6.8	--
Columbus	382	1004.7	1018.7	88	68	78.4	----	95	2	59	1	12	0	70	81	6.20	-----	1.87	17	18	0.0	0	5.4	S	--	---	--	2	13	16	7.1	--
Macon	354	1005.4	1018.2	90	70	80.3	----	97	21	66	3	22	0	69	75	3.80	-----	.46	19	13	0.0	0	7.3	SSW	34	SW	30	1	10	20	7.8	51
Rome	637	995.3	1018.4	87	67	76.9	-1.4	93	2	55	1	8	0	68	81	10.73	+5.76	3.18	18	15	0.0	0	6.1	SW	--	---	--	3	9	19	7.3	--
Savannah	38	1017.3	1018.9	88	72	79.9	-1.0	96	19	67	9	9	0	72	81	6.71	+.07	1.05	22	21	0.0	0	7.7	S	50	NW	21	1	16	14	7.3	45
Valdosta	200	1010.8	1018.9	91	70	80.3	-1.1	98	25	67	3	20	0	71	--	5.82	-.55	2.04	18	17	0.0	0	7.5	SW	--	---	--	1	11	19	7.7	--
IDAHO																																
Boise	2842	918.1	1011.8	89	58	73.3	+.8	98	4	44	29	18	0	44	37	.04	-.20	.02	2	5	0.0	0	11.0	WNW	38	NW	4	25	5	1	2.1	92
Lewiston	1413	963.1	1013.8	88	57	72.5	----	100	25	47	30	15	0	48	47	.36	-----	.24	6	7	0.0	0	6.1	E	--	---	--	25	3	3	2.3	--
Pocatello	4444	862.5	1013.0	85	53	69.0	-1.2	95	1	43	31	11	0	41	39	.68	-.09	.35	5	6	0.0	0	7.9	SW	42	SW	10	18	10	3	2.9	83
ILLINOIS																																
Cairo CO	314	1003.4	1015.9	86	69	77.0	-3.6	93	2	61	14	2	0	--	--	5.43	+2.36	1.99	13	9	0.0	0	6.8	---	27	SW	19	---	---	---	7.6	72
Chicago	618	993.2	1015.6	83	62	72.3	-.4	93	12	51	1	4	0	59	66	6.78	+3.35	3.52	10	4	0.0	0	7.1	SSW	26	NW	24	7	15	9	5.7	74
Joliet	580	994.2	1015.6	83	59	70.9	-3.1	93	12	47	1	3	0	60	74	5.58	+2.59	4.10	11	3	0.0	0	7.0	S	--	---	--	7	17	7	5.4	--
Moline	589	993.9	1016.2	82	60	71.1	-2.4	90	12	49	14	2	0	60	71	4.41	+1.08	1.47	12	7	0.0	0	6.3	S	35	SW	31	9	11	11	5.5	69
Peoria	659	993.9	1015.9	83	62	72.4	-2.8	92	12	50	14	1	0	61	71	4.13	+.55	3.21	7	5	0.0	0	8.1	S	38	SW	1	9	12	10	6.0	73
Springfield	598	992.9	1015.8	82	62	72.4	-1.6	90	12	50	14	1	0	62	74	5.63	+2.77	3.54	10	8	0.0	0	7.4	S	43	SW	19	7	9	15	6.1	68
INDIANA																																
Evansville	385	1001.4	1016.7	85	64	74.3	-2.2	90	3	55	14	3	0	65	75	7.18	+3.76	3.12	11	6	0.0	0	6.9	SSW	32	W	19	--	--	--	6.8	77
Fort Wayne	801	985.8	1016.4	81	59	70.3	-2.1	90	12	46	1	1	0	60	72	3.34	-.26	.92	9	7	0.0	0	6.0	SW	34	S	17	8	12	11	5.9	67

Data from airport unless otherwise specified. CO indicates data from city office.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb.	°F	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0— 3	4— 7	8— 10	0—10	%
Indianapolis	796	987.1	1016.3	83	61	72.3	-2.0	88	30	50	14	0	0	63	76	2.15	-1.19	.95	7	5	0.0	0	7.9	S	40	W	17	--	--	--	6.0	63
South Bend	768	998.2	1015.8	80	58	69.3	-4.3	90	12	45	1	1	0	60	75	6.15	+3.05	2.12	7	3	0.0	0	7.3	S	--	---	--	6	17	8	5.7	--
Terre Haute	585	995.6	1016.4	84	62	72.8	-3.8	89	11	50	14	0	0	64	76	3.06	-.12	1.49	11	8	0.0	0	5.9	S	56	SW	17	--	--	--	5.8	74
IOWA																																
Burlington	605	990.5	1015.6	83	60	71.2	-4.6	91	12	48	14	2	0	62	76	4.32	+.75	1.43	10	7	0.0	0	7.5	S	26	SW	16	8	6	17	6.2	65
Charles City CO	1013	980.4	1016.6	80	58	69.0	-3.3	89	30	48	13	0	0	--	--	5.45	+1.68	1.59	12	5	0.0	0	5.0	---	20	S	15	11	14	6	4.8	64
Davenport CO	579	993.9	------	83	63	73.0	-2.3	89	31	56	13	0	0	--	--	3.36	+.03	1.72	10	6	0.0	0	---	---	---	---	---	---	---	---	---	---
Des Moines CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	---	---	---	---	30	N	1	--	--	--	---	60
Des Moines	800	984.8	1015.7	81	60	70.9	-3.5	89	30	51	13	0	0	60	71	2.93	-.57	.77	10	6	0.0	0	6.9	S	--	---	--	6	8	17	6.9	--
Dubuque CO	641	990.2	1015.2	82	60	71.0	-3.1	89	30	50	14	0	0	--	--	4.69	+.75	1.46	8	8	0.0	0	4.4	---	35	NW	31	--	--	--	6.1	77
Sioux City	1097	974.3	1014.7	81	59	70.1	-3.2	89	29	49	13	0	0	60	75	4.13	+.59	1.49	16	5	0.0	0	7.3	S	34	SW	15	7	10	14	6.4	67
KANSAS																																
Concordia CO	1375	------	------	81	64	72.5	-5.5	97	1	53	13	1	0	--	--	8.88	+5.10	3.70	14	13	T	T	6.5	---	29	NE	17	--	--	--	5.9	45
Dodge City	2594	930.9	1013.3	84	63	73.3	-5.1	96	15	52	13	4	0	67	73	4.71	+1.57	1.17	15	15	T	T	11.9	S	47	E	26	3	15	13	6.7	64
Goodland	3645	889.6	1013.6	84	57	70.6	-6.0	95	1	44	13	7	0	57	74	2.66	-.01	.66	13	20	0.0	0	11.5	SSE	40	NE	26	6	13	12	6.2	--
Topeka	926	983.4	1015.1	81	62	71.5	----	88	1	52	14	0	0	64	81	12.02	------	2.80	18	11	T	T	6.5	SE	38	N	17	---	---	---	7.2	33
Wichita	1372	966.8	1014.2	82	65	73.5	-5.9	92	1	55	14	2	0	65	79	13.38	+10.00	5.29	16	17	0.0	0	11.1	S	49	NW	19	--	--	--	7.5	51
KENTUCKY																																
Lexington	978	982.1	1017.4	82	63	72.4	-3.5	88	3	55	1	0	0	64	77	6.84	+3.19	1.83	13	6	0.0	0	8.5	SSW	--	---	--	7	8	16	6.5	--
Louisville	485	999.7	1016.4	85	65	74.7	-2.9	90	19	59	7	2	0	64	72	5.51	+1.81	2.46	11	4	0.0	0	6.3	S	31	S	19	6	9	16	6.5	64
LOUISIANA																																
Baton Rouge	64	1014.2	1016.9	88	72	80.0	-1.7	93	19	67	8	13	0	71	82	5.61	-1.23	1.19	15	16	0.0	0	5.3	SE	--	---	--	--	--	--	6.7	--
Lake Charles	12	1014.6	1015.8	90	73	81.5	-.6	95	21	67	1	19	0	73	83	5.98	-.29	2.87	15	12	0.0	0	6.0	S	--	---	--	--	--	--	6.6	--
New Orleans CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	---	---	----	---	18	NW	28	--	--	--	---	38
New Orleans	12	1015.9	1017.6	89	73	80.7	----	94	20	69	12	12	0	72	82	7.20	------	1.74	16	22	0.0	0	6.0	S	--	---	--	3	16	12	6.4	--
Shreveport	174	1006.4	1015.2	91	72	81.4	-1.8	95	21	60	1	21	0	72	79	6.45	+2.89	3.40	10	12	0.0	0	8.2	SSE	34	W	5	--	--	--	6.7	74
MAINE																																
Caribou	624	990.5	1013.7	74	53	63.5	-1.1	88	13	43	15	0	0	56	78	2.47	-1.47	.62	15	8	0.0	0	11.7	SSW	40	W	14	1	14	16	7.6	--
Eastport CO	33	1011.9	1014.6	70	53	61.2	+.8	80	19	48	4	0	0	--	--	3.05	-.03	1.12	12	4	0.0	0	7.4	---	27	SE	6	5	15	11	6.6	58
Portland	61	1011.2	1015.0	81	55	68.0	+2.3	92	18	43	21	3	0	59	73	.80	-2.44	.44	10	2	0.0	0	6.8	SSW	30	S	24	8	12	11	5.7	71
MARYLAND																																
Baltimore CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	---	---	----	---	38	SW	13	--	--	--	---	50
Baltimore	14	1012.2	1017.1	85	67	76.1	-.6	94	31	59	27	4	0	65	72	3.00	-1.64	.96	12	4	0.0	0	8.1	W	--	---	--	4	12	15	6.9	--
Frederick	294	------	------	86	63	74.4	----	93	31	52	22	2	0	--	--	2.86	------	.80	17	2	0.0	0	----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Boston	12	1011.2	1015.6	83	65	73.5	+1.8	93	31	56	21	4	0	59	65	1.45	-2.04	.98	10	4	0.0	0	10.6	SW	29	W	18	7	16	8	6.0	70
Nantucket	43	1015.9	1016.3	74	61	67.8	0	81	31	53	23	0	0	63	87	3.25	+.38	.97	11	2	0.0	0	10.6	SW	24	SW	14	6	7	18	6.8	59
Pittsfield	1153	------	------	77	54	65.5	-2.0	85	13	44	15	0	0	--	--	5.05	+.86	.97	19	9	0.0	0	----	---	--	---	--	4	13	14	6.6	--
MICHIGAN																																
Alpena CO	587	993.6	1015.9	74	56	65.0	-.9	89	12	44	14	0	0	--	--	4.42	+1.66	.99	13	6	T	T	8.5	---	33	NW	24	11	7	13	6.0	60
Detroit	619	989.8	1016.2	81	61	71.1	.1	90	12	49	14	2	0	57	65	3.90	+.58	1.18	11	6	0.0	0	7.0	NW	32	NW	13	--	--	--	5.3	75
Escanaba CO	594	993.2	1015.2	71	56	63.5	-2.5	86	29	46	14	0	0	--	--	5.20	+1.87	1.57	13	5	0.0	0	8.6	---	28	NW	22	8	7	16	6.3	57
Grand Rapids CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	---	---	----	---	47	S	16	--	--	--	---	74
Grand Rapids	638	991.2	1016.0	80	56	68.1	-1.8	90	12	45	1	2	0	58	73	8.42	+5.50	2.32	13	8	0.0	0	7.5	W	--	---	--	10	13	8	5.3	--
Lansing	859	984.8	1016.4	81	57	68.7	-2.9	90	12	45	1	1	0	58	71	4.34	+1.24	1.23	10	7	0.0	0	10.2	W	37	S	24	--	--	--	4.9	76
Marquette CO	677	987.8	1014.9	72	55	63.6	-1.3	89	10	45	20	0	0	--	--	3.21	+.09	1.09	13	4	0.0	0	7.1	---	26	S	15	--	--	--	6.8	60
Muskegon	627	993.2	1015.6	77	56	66.5	-3.0	88	10	41	14	0	0	58	76	5.15	+2.82	1.86	10	6	0.0	0	7.1	W	--	---	--	9	15	7	4.9	--
Sault Ste. Marie	721	992.9	1015.6	73	50	61.2	-1.5	85	10	36	14	0	0	54	81	1.29	-1.40	.38	13	1	0.0	0	7.0	W	30	WNW	13	--	--	--	6.8	59
Ypsilanti	722	988.2	1016.2	83	60	71.2	----	91	12	48	1	2	0	57	64	2.68	------	1.78	7	3	0.0	0	9.2	W	34	ENE	19	10	14	7	5.2	--
MINNESOTA																																
Duluth	1128	963.8	1014.7	73	52	62.1	----	89	28	42	1	0	0	54	80	4.07	------	1.53	16	9	T	0	7.7	NW	32	W	12	--	--	--	6.5	56
Intern'l Falls	1179	972.6	1013.6	75	51	63.2	-3.9	91	29	41	13	2	0	55	78	3.68	+.25	1.00	14	8	0.0	0	----	---	--	---	--	7	12	12	6.4	--
Minneapolis	830	981.4	1014.2	81	60	70.5	-1.8	90	10	51	20	2	0	57	68	3.74	+.01	1.10	13	4	T	T	9.7	S	36	NW	22	--	--	--	4.8	65
Rochester	1014	978.7	1015.3	81	57	69.0	-2.9	89	11	46	6	0	0	56	67	6.33	+3.17	3.02	11	6	T	T	8.8	S	--	---	--	7	15	9	6.0	--
St. Cloud	1034	976.6	1014.2	81	55	67.8	-3.6	91	29	41	20	1	0	56	67	1.72	-1.83	.60	10	4	0.0	0	8.9	WNW	--	---	--	9	13	9	5.7	--
St. Paul	703	988.5	1014.3	81	60	70.6	-1.5	90	29	50	20	2	0	57	66	4.06	+.49	1.03	14	6	T	0	9.6	SE	35	W	3	10	11	10	5.6	--
MISSISSIPPI																																
Jackson	315	1005.4	1017.0	91	69	79.9	-1.7	96	2	61	1	22	0	69	77	8.12	+3.58	3.46	15	20	0.0	0	6.2	SSE	39	E	11	5	15	11	6.2	57
Meridian	294	1004.4	1017.4	90	69	79.2	-.5	96	21	56	1	18	0	69	80	7.54	+2.65	2.32	15	15	0.0	0	5.3	SW	--	---	--	4	13	14	6.7	--
Vicksburg CO	234	1012.2	------	89	71	79.6	-1.7	93	21	65	8	13	0	--	--	5.05	+.52	1.01	13	12	0.0	0	7.3	---	42	S	16	4	16	11	6.1	59
MISSOURI																																
Columbia CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	---	---	----	---	--	---	--	--	--	--	---	61
Columbia	733	987.5	1015.5	82	63	72.4	-4.7	89	12	53	14	0	0	68	78	2.94	-.55	1.58	8	3	0.0	0	6.9	S	23	NW	17	--	--	--	6.5	--
Kansas City	741	988.8	1015.1	81	64	72.5	-5.6	91	1	54	14	2	0	63	75	9.90	+6.08	3.97	13	8	0.0	0	6.4	S	58	NW	12	--	--	--	6.8	52
St. Joseph	809	980.7	1014.8	82	62	72.1	-5.3	92	1	53	14	2	0	62	77	7.33	+3.55	2.83	9	9	0.0	0	7.2	SSE	34	S	15	7	6	18	6.7	52
St. Louis CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	---	---	----	---	41	SW	17	--	--	--	---	75
St. Louis	465	995.6	1015.4	86	65	75.2	-2.6	94	12	54	14	7	0	61	66	1.26	-1.40	.36	8	2	0.0	0	5.9	S	--	---	--	--	--	--	8.2	--
Springfield	1265	969.2	1015.7	80	63	71.7	-4.5	87	12	52	14	0	0	65	82	2.29	-1.92	.54	14	7	0.0	0	8.5	SSE	36	NW	3	3	10	18	7.4	60
MONTANA																																
Billings	3568	892.3	1014.1	81	54	67.6	-4.4	94	27	46	17	4	0	45	50	1.85	------	.73	10	8	T	0	10.2	SW	36	NW	10	13	11	7	4.3	74
Butte	5553	832.4	1017.7	75	42	58.6	-5.3	85	26	33	12	0	0	41	58	1.52	+.14	.37	11	13	T	0	8.5	NW	--	---	--	11	14	6	4.8	--
Glasgow CO	2090	940.1	1013.5	84	54	68.8	-2.4	98	28	45	22	8	0	50	54	.54	-.85	.19	7	4	0.0	0	----	---	--	---	--	12	11	8	5.0	--
Great Falls	3663	889.6	1014.5	79	54	66.3	-2.9	93	9	45	30	3	0	45	51	3.54	+2.03	1.40	8	9	0.0	0	9.3	SW	54	S	9	11	13	7	4.6	76
Havre CO	2488	926.5	1014.6	82	54	67.8	-.5	98	9	44	12	6	0	--	--	2.08	+.21	1.35	9	6	0.0	0	7.3	---	29	NW	11	15	12	4	4.0	75
Helena	3893	875.4	1015.4	80	50	64.8	-.9	92	26	40	12	3	0	46	55	.72	-.42	.30	8	11	0.0	0	6.7	WSW	45	SW	5	14	12	5	4.2	77
Kalispell	2965	912.3	1013.9	79	50	64.5	----	89	26	40	12	0	0	49	--	2.74	------	.68	13	11	T	0	6.9	SSE	--	---	--	16	8	7	4.3	--
Miles City CAA	2629	931.1	1013.8	83	56	69.4	----	99	28	48	17	10	0	49	--	1.05	------	.50	9	6	T	T	10.2	WNW	--	---	--	10	15	6	4.7	--
Missoula	3201	902.5	1015.0	82	49	65.4	-1.4	92	26	39	12	3	0	45	54	1.19	+.39	.27	9	7	T	T	5.9	NW	41	NE	15	15	12	4	3.9	74
NEBRASKA																																
Grand Island	1841	948.9	1013.7	81	60	70.9	----	91	1	47	13	1	0	60	75	9.60	------	5.41	17	16	T	0	9.4	S	--	---	--	8	12	11	6.1	--
Lincoln CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	---	---	----	---	29	NW	4	--	--	--	---	49
Lincoln	1184	972.6	1014.5	82	61	71.6	-4.4	96	1	49	6	2	0	61	74	3.91	+.06	1.28	15	10	0.0	0	8.1	SE	--	---	--	--	--	--	6.6	--
Norfolk	1554	960.0	1014.7	79	59	69.3	-6.4	90	1	47	13	1	0	59	75	9.11	+5.70	2.71	12	12	T	T	9.2	SSE	--	---	--	--	--	--	5.7	--
North Platte	2783	917.0	1013.8	81	56	69.6	-3.3	95	1	40	13	2	0	58	74	4.56	+1.82	1.12	13	17	0.0	0	9.7	SE	40	NE	12	7	12	12	6.1	55
Omaha	978	976.0	1014.9	82	62	71.9	-3.3	92	1	52	13	2	0	61	71	6.65	+3.11	2.82	16	9	0.0	0	8.3	SSE	46	N	15	--	--	--	6.5	71
Scottsbluff	3950	880.5	1013.3	84	56	70.0	-3.3	97	10	45	13	7	0	53	65	2.66	+.93	.56	12	16	T	0	8.0	ESE	--	---	--	10	15	5	4.5	--
Valentine CO	2581	924.5	1015.2	79	56	67.6	-6.1	95	29	41	13	2	0	--	--	3.54	+.53	1.15	14	11	T	0	7.7	---	54	W	8	8	14	9	5.6	71

Data from airport unless otherwise specified. CO indicates data from city office.

ble 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days Max. 90° F. or above	Temperature: No. of days Min. 32° F. or below	Temperature: Average dew point	Temperature: Average relative humidity*	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days .01 inch or more	Precipitation: No. of days With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile Speed	Wind: Fastest mile Direction	Wind: Fastest mile Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover†, tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb.*	*Mb.*	°F	°F	°F	°F	°F		°F				°F	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M* p h.		*M* p h.			*0—* 3	*4—* 7	*8—* 10	*0—10*	%
NEVADA																																
ko	5075	845.6	1013.3	88	50	69.3	----	100	1	35	30	15	0	42	42	2.35	-----	1.04	8	8	T	T	6.3	SW	--	---	--	19	10	2	2.7	--
y	6257	811.7	1014.6	84	48	65.9	+2.4	95	1	36	30	2	0	--	--	.87	+.25	.39	11	19	T	0	10.0	---	38	NE	24	10	10	11	5.3	63
s Vegas	2162	934.3	1007.8	102	75	88.7	+1.6	115	2	66	6	30	0	45	27	1.34	+.81	.65	6	9	0.0	0	8.3	SW	--	---	--	20	6	5	3.0	--
no	4404	862.5	1012.7	91	49	70.0	+1.9	97	24	40	30	22	0	42	39	.04	-.21	.02	3	3	0.0	0	5.9	W	33	W	28	27	4	0	1.3	94
nnemucca	4299	867.3	1010.5	92	56	73.8	+3.2	100	1	46	30	22	0	34	25	.63	+.42	.63	2	4	0.0	0	9.2	---	33	N	25	20	9	2	2.6	91
NEW HAMPSHIRE																																
ncord	339	1004.:	1015.4	83	55	69.1	+1.7	91	13	41	21	3	0	57	68	.96	-2.60	.29	12	2	0.0	0	9.5	S	23	W	18	6	16	9	6.1	69
. Washington	6262	810.4	1021.7	53	43	47.8	-1.4	65	17	34	15	0	0		--	5.09	-1.01	1.55	19	3	T	T	27.0	---	--	---	--	1	9	21	8.2	25
NEW JERSEY																																
lantic City CO	8	1014.6	1016.3	79	68	73.5	+1.4	91	20	63	22	2	0	--	--	3.28	-.65	.78	14	5	0.0	0	13.3	---	40	SW	13	5	12	14	6.6	68
wark	11	1015.2	1016.4	85	65	75.2	+.4	98	31	60	23	6	0	61	65	5.41	+.70	1.98	10	5	0.0	0	9.0	SW	45	S	5	6	10	15	7.1	--
enton CO	56	1009.8	1016.6	83	65	74.2	-.3	92	31	59	21	3	0	--	--	6.62	+2.68	3.61	11	8	0.0	0	7.0	---	26	W	3	7	9	15	6.6	65
NEW MEXICO																																
buquerque	5310	849.0	1010.2	89	64	76.8	+.1	97	2	58	24	15	0	52	48	2.00	+.59	.57	15	13	0.0	0	9.7	SE	66	SE	20	5	16	10	5.9	67
ayton	4969	847.3	1013.1	83	58	70.4	-3.7	93	15	53	24	4	0	58	72	7.77	+5.23	2.59	15	19	T	0	12.7	S	--	---	--	3	22	6	5.8	--
ton	6379	808.0	1013.8	81	53	67.0	----	90	16	46	25	2	0	52	66	4.68	-----	1.84	19	27	.1	T	7.9	N	--	---	--	0	16	15	7.0	--
swell	3611	891.3	1011.5	91	65	77.9	-1.0	101	15	59	14	20	0	60	60	4.69	+2.43	1.89	14	19	T	T	8.3	SSE	59	N	15	2	19	10	6.6	68
NEW YORK																																
bany	277	1011.9	1015.5	82	58	69.9	-1.0	91	17	44	15	3	0	59	70	3.26	+.45	.68	14	6	0.0	0	7.7	S	34	NW	18	4	19	8	6.3	72
ar Mountain	1300	------	------	77	61	69.1	----	90	31	54	20	1	0	--	--	5.16	-----	1.33	13	9	0.0	0	----	----	--	---	--	4	18	9	6.6	--
ghamton CO	----	------	------	---	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	26	W	29	--	--	--	---	53
ghamton	858	986.1	1016.3	80	56	67.6	----	87	9	44	15	0	0	60	80	2.95	-----	.61	13	8	0.0	0	4.9	SW	--	---	--	2	13	16	7.4	--
ffalo	693	988.5	1016.0	79	59	69.0	-1.0	91	9	51	21	1	0	58	72	3.12	+.09	1.06	11	6	0.0	0	11.5	SW	43	SW	17	9	12	10	5.7	73
nton CO	406	998.3	1013.9	80	58	69.2	+.6	90	9	44	21	1	0	--	--	2.47	-1.03	.52	14	6	0.0	0	6.6	---	26	SW	17	8	7	16	6.5	45
w York CO	----	------	------	---	--	----	----	---	--	---	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	----	---	--	---	---	--	---	67
w York	10	1014.6	1016.4	83	67	75.0	----	93	31	61	10	2	0	61	65	5.41	-----	2.46	12	5	0.0	0	10.1	NE	42	NW	4	6	9	16	7.1	--
wego CO	292	1004.3	1015.6	76	61	68.3	-.9	86	13	50	15	0	0	--	--	3.07	+.15	.70	12	6	0.0	0	7.1	---	21	W	18	12	13	6	4.7	75
chester	543	997.0	1015.8	81	59	69.6	-1.1	90	16	48	21	1	0	58	74	3.53	+.57	.69	15	9	0.0	0	8.5	SW	31	SW	17	7	15	9	6.0	74
racuse	399	994.2	1015.7	81	60	70.3	+1.0	90	17	47	15	1	0	58	68	2.05	-1.63	.65	13	4	0.0	0	8.6	W	36	NW	18	6	16	9	5.9	71
NORTH CAROLINA																																
heville Co.	----	------	------	82	63	72.3	+.6	90	19	53	9	1	0	--	--	4.10	-.20	.76	19	12	0.0	0	----	---	26	NW	24	4	10	17	7.1	69
heville CAA AP	2203	945.8	1018.3	--	--	----	----	---	--	---	--	--	--	64	84	----	-----	---	--	--	---	---	4.4	SE	--	---	--	---	---	--	---	--
arlotte	----	------	------	---	--	----	----	---	--	---	--	--	--	--	--	----	-----	---	--	--	---	---	----	---	25	W	18	--	--	--	---	65
arlotte	741	990.9	1018.1	87	67	77.0	-.1	94	20	62	10	8	0	67	77	5.34	+.24	1.41	14	14	T	T	7.2	SW	--	---	--	3	9	19	7.5	--
ensboro	891	987.5	1018.8	85	66	75.5	-1.7	93	20	61	9	3	0	67	81	5.11	-.01	.99	18	13	0.0	0	7.3	SW	30	NW	18	4	9	18	7.1	57
tteras CO	4	1018.0	1018.3	83	73	78.0	-.2	87	19	67	7	0	0	73	85	9.07	+3.58	2.48	19	15	0.0	0	11.9	S	40	SW	27	4	9	18	7.2	71
leigh CO	----	------	------	---	--	----	----	---	--	---	--	--	--	--	--	----	-----	---	--	--	---	---	----	---	23	SW	16	--	--	--	---	49
leigh	400	1002.4	1018.0	87	67	77.1	----	95	20	62	8	14	0	69	81	5.07	-----	1.57	18	15	0.0	0	6.1	SW	--	---	--	3	12	16	6.8	--
lmington CO		1017.3	1018.7	85	72	78.1	-.9	94	19	65	8	3	0	--	--	18.90	+11.77	7.10	26	15	0.0	0	----	---	34	NW	21	1	11	19	7.8	58
lmington CAA AP	M	------	------	---	--	----	----	---	--	---	--	--	--	73	--	----	-----	---	--	--	---	---	6.0	SW	--	---	--	---	---	--	---	--
nston-Salem	967	983.7	1018.6	85	66	75.3	-2.2	93	20	61	8	4	0	66	77	4.92	+.05	.96	14	11	0.0	0	7.1	WSW	--	---	--	2	9	20	7.2	--
NORTH DAKOTA																																
smarck	1653	953.9	1013.1	81	55	67.9	-1.5	95	29	44	13	5	0	54	66	1.12	-1.12	.63	8	7	T	T	9.2	SSE	36	NW	29	10	11	10	5.5	69
vils Lake CO	1471	960.4	1012.9	76	55	65.7	-1.7	92	29	44	13	3	0	--	--	1.80	-.77	.65	13	3	T	T	7.2	---	21	W	13	--	--	--	4.9	59
rgo	895	979.0	1012.7	80	56	67.9	-.2	94	29	42	13	3	0	55	68	.42	-3.01	.17	8	6	0.0	0	11.5	SSE	34	NW	12	--	--	--	5.1	65
lliston CO	1877	946.5	1012.4	79	55	66.8	-2.1	97	28	44	4	4	0	52	65	3.20	+1.31	1.72	11	11	0.0	0	6.7	---	29	W	11	--	--	--	6.0	82
OHIO																																
ron	1210	972.9	1017.3	80	58	68.9	-3.7	89	30	47	14	0	0	59	74	3.00	-.85	.73	11	8	0.0	0	7.1	SW	--	---	--	7	12	12	5.7	--
ncinnati CO	----	------	------	---	--	----	----	---	--	---	--	--	--	--	--	----	-----	---	--	--	---	---	----	---	----	---	--	---	---	--	---	53
ncinnati	553	985.4	1016.9	82	62	72.2	----	87	28	55	7	0	0	63	75	4.39	-----	.89	13	9	0.0	0	6.8	SW	--	---	--	9	7	15	6.2	--
eveland	787	989.2	1016.5	82	60	70.9	-1.0	90	12	49	1	1	0	59	70	5.15	+1.70	2.73	14	6	0.0	0	9.0	SW	37	NW	17	12	8	11	5.4	64
lumbus CO	----	------	------	---	--	----	----	---	--	---	--	--	--	--	--	----	-----	---	--	--	---	---	----	---	----	---	--	---	---	--	---	65
lumbus	724	987.1	1016.6	83	61	72.2	-.9	89	30	47	14	0	0	61	72	4.74	+.88	1.03	11	8	0.0	0	7.1	S	28	WNW	13	10	7	14	5.8	--
yton	1002	980.7	1016.8	82	62	72.3	-2.6	87	12	50	14	0	0	60	70	2.94	-.35	1.49	10	6	0.0	0	8.7	SW	35	SW	17	9	8	14	6.0	69
ndusky CO	603	994.6	1017.3	81	63	72.4	-1.0	92	12	53	1	2	0	--	--	5.41	+1.97	1.74	12	7	0.0	0	6.8	---	30	NW	29	14	8	9	4.4	77
ledo	621	993.6	1016.3	82	60	70.6	-1.2	91	12	47	1	1	0	60	70	3.53	+.51	1.35	9	4	0.0	0	8.2	SW	37	NW	29	8	14	9	5.6	70
ungstown	1178	974.6	1016.8	80	58	68.7	-2.3	88	30	51	15	0	0	59	73	2.18	-1.32	.58	12	3	0.0	0	7.8	SW	45	W	17	9	10	12	5.5	--
OKLAHOMA																																
klahoma City CO	----	------	------	---	--	----	----	---	--	---	--	--	--	--	--	----	-----	---	--	--	---	---	----	---	26	S	16	--	--	--	---	57
klahoma City	1254	968.5	1013.6	85	68	76.2	-4.4	90	2	59	14	3	0	68	80	7.54	+4.68	1.67	15	13	0.0	0	10.5	S	--	---	--	--	--	--	8.0	--
lsa	672	990.5	1014.1	85	68	76.0	-5.1	91	2	57	14	4	0	67	79	9.01	+5.75	1.55	16	15	T	T	9.2	S	38	NW	31	--	--	--	8.3	40
OREGON																																
ker AP CAA	3369	------	------	---	--	----	----	---	--	---	--	--	--	45	--	----	-----	----	--	--	---	---	----	NNW	--	---	--	---	---	--	---	--
ker CO	3446	896.0	1015.5	83	49	65.9	+.3	94	13	37	11	4	0	--	--	.45	-.13	.26	7	4	0.0	0	6.1	---	28	SW	18	23	7	1	1.8	91
rns CO	4143	874.0	1014.3	86	51	68.2	+1.6	95	25	38	29	12	0	40	38	.17	-.27	.09	2	4	0.0	0	----	---	--	---	--	25	6	0	1.6	--
gene	364	1004.1	1017.6	85	51	67.7	----	94	12	43	11	8	0	51	60	.10	-----	.10	2	0	0.0	0	9.0	N	--	---	--	23	3	5	2.0	--
achas	4050	878.8	1017.0	77	50	63.3	----	90	25	37	11	1	0	42	49	.72	-----	.45	6	6	0.0	0	5.8	WNW	--	---	--	25	2	4	2.1	--
dford	1314	968.2	1014.7	90	54	72.4	-.3	102	31	44	29	20	0	49	48	0	-.30	0	0	0	0.0	0	7.3	NW	--	---	--	26	5	0	1.2	--
ndleton	1489	961.7	1014.3	87	59	73.3	+1.9	98	25	49	11	12	0	44	38	.07	-.34	.05	2	1	0.0	0	9.1	SE	--	---	--	27	2	2	1.5	--
rtland CO	----	------	------	---	--	----	----	---	--	---	--	--	--	--	--	.77	+.16	----	--	--	---	---	----	---	----	---	--	---	---	--	---	--
rtland	30	1016.6	1018.0	79	55	66.9	+1.4	90	21	48	11	2	0	54	67	.50	-----	.26	6	0	0.0	0	6.7	NNW	24	S	28	18	6	7	3.7	71
seburg CO	479	998.3	1016.6	85	54	69.5	+2.1	96	12	46	11	6	0	--	--	.01	-.31	.01	1	0	0.0	0	5.7	---	22	N	30	24	4	3	1.8	90
lem	195	1010.2	1017.5	84	51	67.3	+.3	94	12	43	11	4	0	52	63	.18	-.21	.11	4	0	0.0	0	5.7	N	--	---	--	22	4	5	2.6	--
xton Summit CO	3836	------	------	77	50	63.8	----	87	31	38	29	0	0	--	--	T	-----	T	0	0	0.0	0	----	---	--	---	--	26	4	1	1.4	--
routdale	29	------	------	81	52	66.1	----	91	21	45	11	2	0	54	69	.89	-----	.38	5	1	0.0	0	5.4	WNW	--	---	--	17	7	7	3.8	--
PENNSYLVANIA																																
llentown	381	1003.1	1016.9	84	61	72.4	-1.8	94	31	54	22	5	0	61	73	5.22	+.61	1.90	11	8	0.0	0	6.1	WSW	--	---	--	5	12	14	6.7	--
rwensville	2215	------	------	75	54	64.3	----	81	12	45	7	0	0	58	82	5.28	-----	.99	17	11	0.0	0	8.5	WNW	22	WNW	18	4	9	18	7.2	--
tie CO	655	------	------	76	63	69.5	-.5	85	23	56	21	0	0	--	--	6.12	+3.11	1.67	14	8	0.0	0	6.7	---	22	SW	29	13	10	8	4.8	53
rrisburg	335	1003.4	1016.8	83	63	72.6	-2.2	91	31	56	22	2	0	62	72	3.19	-.64	.90	12	5	0.0	0	4.7	W	25	SW	3	6	9	16	6.7	65
rk Place	1932	------	------	76	58	66.9	----	84	31	49	22	0	0	--	--	5.08	0	1.61	13	4	0.0	0	----	---	--	---	--	4	13	14	6.7	--
iladelphia CO	----	------	------	---	--	----	----	---	--	---	--	--	--	--	--	----	-----	---	--	--	---	---	----	---	----	---	--	---	---	--	---	65
iladelphia	26	1015.6	1016.7	85	66	75.4	+.1	93	31	58	23	5	0	64	71	5.80	+1.65	2.84	13	5	0.0	0	8.1	SW	35	WSW	13	3	10	18	7.3	--
ttsburgh	1248	986.8	1017.0	79	62	70.6	-2.4	88	12	54	7	0	0	59	71	4.09	+.04	1.54	11	6	0.0	0	8.3	S	24	W	2	7	10	14	6.6	48
ading CO	268	1005.1	1016.6	84	65	74.2	-1.0	93	31	57	22	3	0	--	--	2.22	-2.04	.50	11	6	0.0	0	8.8	---	38	SW	3	5	10	16	6.9	68
ranton CO	746	987.8	1016.6	80	60	70.3	-1.4	87	31	50	22	0	0	--	--	4.48	+.45	1.31	15	8	0.0	0	5.4	---	21	NW	30	8	14	9	5.8	53
lliamsport	527	998.0	1016.8	82	59	70.5	-2.8	91	17	49	22	1	0	60	75	4.79	+1.04	1.05	13	9	0.0	0	4.7	W	38	WSW	30	3	13	15	7.0	--
RHODE ISLAND																																
lock Island CO	26	1015.2	1016.3	75	63	69.1	+.7	84	31	58	24	0	0	--	--	2.83	-.25	1.02	10	2	0.0	0	11.8	---	38	NW	20	6	11	14	6.1	64
ovidence	55	1010.5	1016.2	81	62	71.5	-.9	91	31	52	24	3	0	62	74	1.42	-1.85	.51	11	5	0.0	0	7.2	SW	27	SW	18	7	10	14	6.4	58

Data from airport unless otherwise specified. CO indicates data from city office.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity*	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover†, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb.	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
SOUTH CAROLINA																																
Charleston CO	----	------	------	---	--	----	----	--	--	--	--	--	--	--	--	------	------	----	--	--	---	---	----	---	36	SW	27	--	--	--	---	5
Charleston	9	1017.3	1018.9	87	71	79.2	-0.8	94	19	67	9	9	0	73	84	14.32	+7.12	4.73	22	22	0.0	0	5.9	SW	--	---	--	2	13	16	6.9	-
Columbia CO	----	------	------	---	--	----	----	--	--	--	--	--	--	--	--	------	------	----	--	--	---	---	----	---	33	SW	27	--	--	--	---	5
Columbia	332	1010.2	1018.1	89	70	79.2	----	95	19	64	8	22	0	70	78	11.79	------	3.11	16	16	0.0	0	6.3	SW	--	---	--	5	12	14	6.8	-
Florence	146	1012.5	1018.3	88	70	79.0	----	95	19	65	8	17	0	71	82	8.39	------	2.55	16	17	0.0	0	7.6	SW	--	---	--	3	10	18	7.3	-
Greenville	1006	981.4	1018.0	85	67	75.7	-1.2	92	20	64	1	4	0	67	80	9.02	+3.66	2.85	14	14	0.0	0	6.7	SW	30	SW	13	5	7	19	7.4	5
Spartanburg	801	989.2	1018.5	86	67	76.5	-2.9	93	20	63	9	5	0	67	78	4.20	-.78	1.23	16	15	0.0	0	8.0	SW	40	W	3	4	9	18	7.2	-
SOUTH DAKOTA																																
Huron	1282	967.5	1013.9	81	57	68.7	-3.1	94	29	45	13	1	0	56	71	3.20	+.04	2.19	10	10	0.0	0	10.3	S	44	S	11	9	11	11	5.6	8
Rapid City	3215	902.5	1014.1	80	54	66.9	-4.1	95	10	40	13	5	0	50	60	1.62	-.46	.69	14	17	0.0	0	12.9	SSE	49	NW	12	11	14	6	5.0	6
Sioux Falls	1420	964.4	1015.1	80	57	68.0	-5.5	88	29	44	13	0	0	57	73	2.24	-.93	.89	12	11	0.0	0	8.3	S	42	SE	18	8	11	12	6.3	-
TENNESSEE																																
Bristol	1519	964.8	1018.1	82	63	72.5	-3.6	88	3	54	9	0	0	64	79	4.45	-.65	.74	16	8	0.0	0	5.3	SW	--	---	--	6	8	17	6.8	-
Chattanooga	670	993.9	1017.3	86	67	76.7	-.7	94	19	54	1	6	0	68	79	11.27	+7.02	3.01	20	13	0.0	0	4.4	S	31	NW	5	6	7	18	6.9	9
Knoxville	949	983.4	1017.7	85	66	75.5	-1.2	91	3	57	1	3	0	66	77	7.43	+3.07	1.98	15	11	0.0	0	7.7	SW	34	W	13	6	9	16	6.7	9
Memphis CO	----	------	------	---	--	----	----	--	--	--	--	--	--	--	--	------	------	----	--	--	---	---	----	---	23	SW	20	--	--	--	---	7
Memphis	271	1006.1	1015.6	88	70	79.0	-.9	94	20	61	1	13	0	68	74	4.17	*+.99	1.42	14	9	0.0	0	7.7	S	--	---	--	4	8	19	7.2	-
Nashville	577	997.3	1016.6	86	67	76.1	-3.0	92	3	59	1	6	0	67	78	7.75	+3.87	3.56	16	10	0.0	0	5.9	S	28	W	20	7	6	18	6.9	4
TEXAS																																
Abilene	1752	952.9	1012.0	91	71	81.2	+.1	98	9	66	1	25	0	66	68	6.96	+4.84	2.50	10	15	0.0	0	12.6	S	44	NE	12	2	9	20	8.1	6
Amarillo	3590	889.6	1011.9	86	63	74.3	-1.6	95	16	53	14	9	0	62	73	7.32	+4.48	1.93	15	17	T	T	10.1	SSE	54	NE	28	--	--	--	6.2	6
Austin	515	992.9	1013.7	94	73	83.8	-.2	99	29	67	1	28	0	69	70	.73	-1.60	.42	5	4	0.0	0	9.1	S	27	SE	12	--	--	--	5.3	7
Big Spring	2533	925.8	1012.4	91	70	80.5	-2.4	98	9	65	14	21	0	63	63	2.53	+.53	.62	11	15	0.0	0	12.0	S	--	---	--	2	13	16	7.3	-
Brownsville	16	1011.5	1013.2	92	77	84.5	+.9	94	30	73	1	31	0	74	78	.11	-2.16	.11	1	0	0.0	0	13.3	SE	31	S	31	--	--	--	4.5	7
Corpus Christi	40	1013.5	1014.2	94	76	85.0	+3.4	96	14	71	1	30	0	75	81	1.39	-.14	1.36	3	1	0.0	0	15.6	SSE	40	SE	17	13	12	6	4.5	8
Dallas	487	996.6	1013.9	90	73	81.8	-2.4	98	25	68	1	20	0	69	71	4.10	+1.24	2.05	11	9	0.0	0	8.8	S	38	S	16	--	--	--	7.5	6
Del Rio CO	957	978.7	1010.8	95	75	84.7	-1.6	101	29	70	12	28	0	67	61	1.58	-.83	1.25	5	3	0.0	0	10.0	---	28	SE	11	11	11	9	5.2	8
El Paso	3920	885.9	1009.6	91	68	79.6	-.1	99	3	62	24	21	0	59	56	3.57	+1.58	1.64	13	17	T	T	9.3	S	49	NW	11	--	--	--	6.3	6
Fort Worth	688	990.2	1013.8	90	72	81.3	-2.3	97	25	68	1	19	0	69	72	4.53	+1.92	2.01	12	7	0.0	0	13.2	S	30	S	16	--	--	--	7.2	-
Galveston CO	--	------	------	---	--	----	----	--	--	--	--	--	--	--	--	------	------	----	--	--	---	---	----	---	34	W	14	--	--	--	---	5
Galveston	7	1015.6	1015.9	89	79	84.1	+.7	92	24	72	11	18	0	74	77	1.42	-2.29	.50	11	13	0.0	0	10.8	S	--	---	--	2	21	8	6.0	-
Houston CO	----	------	------	---	--	----	----	--	--	--	--	--	--	--	--	------	------	----	--	--	---	---	----	---	31	SE	4	--	--	--	---	6
Houston	41	1013.2	1015.2	91	74	82.3	.2	96	6	69	1	23	0	74	82	3.29	-1.13	1.84	11	12	0.0	0	9.4	S	--	---	--	1	17	13	6.9	-
Laredo	508	997.3	1011.3	100	77	88.8	+1.5	104	28	74	2	31	0	69	61	.53	-1.15	.40	3	1	0.0	0	15.3	SE	--	---	--	--	--	--	4.6	-
Lubbock	3238	903.2	1011.8	87	65	76.1	-3.0	97	9	55	14	11	0	58	71	3.12	+.99	.74	14	16	T	T	11.7	SE	--	---	--	4	10	17	7.0	-
Palestine CO	491	997.6	1015.2	90	73	81.2	-1.0	93	30	64	1	19	0	--	--	4.57	+1.89	1.83	9	4	0.0	0	6.9	---	20	SE	16	3	16	12	6.6	7
Port Arthur CO	----	------	------	---	--	----	----	--	--	--	--	--	--	--	--	------	------	----	--	--	---	---	----	---	31	SW	28	--	--	--	---	6
Port Arthur	5	1014.9	1015.4	90	73	81.1	----	93	26	67	9	21	0	74	85	4.68	------	1.30	14	15	0.0	0	6.7	S	--	---	--	3	16	12	6.7	-
San Angelo	1903	946.8	1012.1	92	71	81.7	-1.9	98	9	68	6	26	0	63	62	.84	-1.17	.33	8	10	0.0	0	8.9	SSE	24	S	16	3	10	18	7.4	-
San Antonio	782	989.5	1013.5	94	74	84.0	+.4	98	29	68	1	29	0	67	66	1.60	-.57	1.05	3	1	0.0	0	10.6	SE	30	SE	12	--	--	--	5.5	7
Victoria	109	1010.5	1014.4	94	75	84.6	+.3	98	26	71	1	29	0	73	78	1.60	-2.12	1.14	4	9	0.0	0	10.4	SE	--	---	--	4	19	8	6.1	-
Waco	504	995.3	1013.1	93	74	83.1	-2.6	98	29	68	6	26	0	70	70	2.59	+.46	.50	9	8	0.0	0	11.2	S	--	---	--	6	11	14	6.4	-
Wichita Falls	1027	977.3	1012.8	88	70	79.0	-6.6	94	29	65	4	13	0	69	74	11.86	+9.53	3.93	18	17	0.0	0	10.8	SE	28	WNW	16	--	--	--	7.8	-
UTAH																																
Milford	5029	846.9	1012.6	90	56	72.9	-.6	99	1	46	31	19	0	44	52	.96	+.06	.38	7	15	T	0	8.3	S	--	---	--	9	17	5	4.9	-
Salt Lake City	4222	871.0	1011.8	89	60	74.3	+.3	101	1	45	31	15	0	46	41	1.06	+.54	.58	4	8	T	0	7.3	SE	38	SE	6	15	12	4	3.5	8
VERMONT																																
Burlington	398	999.7	1014.3	81	59	70.0	-.3	91	13	46	21	1	0	58	66	2.41	-1.09	1.02	16	2	0.0	0	9.5	S	31	SW	16	6	14	11	6.5	8
VIRGINIA																																
Cape Henry CO	16	1016.6	1017.3	84	70	76.7	-.8	96	20	66	24	8	0	--	--	10.26	+4.89	2.50	15	12	0.0	0	9.5	---	40	NW	6	8	9	14	6.1	7
Lynchburg	947	984.4	1017.8	82	64	73.3	-2.8	92	20	58	8	2	0	65	80	7.92	+3.71	1.57	19	9	0.0	0	8.1	SSW	41	W	24	4	8	19	7.4	4
Norfolk CO	----	------	------	---	--	----	----	--	--	--	--	--	--	--	--	------	------	----	--	--	---	---	----	---	29	N	6	--	--	--	---	5
Norfolk	11	1016.9	1018.0	85	69	77.2	0	95	20	64	28	6	0	69	80	12:83	+7.08	3.17	14	8	0.0	0	8.9	SW	--	---	--	5	11	15	6.8	-
Richmond	162	1011.9	1017.4	86	67	76.8	-.9	95	31	59	23	11	0	68	81	6.69	------	1.64	12	11	0.0	0	7.8	SSW	31	W	4	3	6	22	7.6	6
Roanoke	1192	978.0	1018.0	83	64	73.2	-2.5	91	20	56	2	1	0	64	77	5.21	+1.03	1.64	18	10	0.0	0	7.7	SW	--	---	--	4	10	17	7.4	-
Urbanna CO	31	1016.6	1017.6	86	67	76.5	----	94	3	58	23	9	0	--	--	7.78	------	1.88	17	11	0.0	0	----	---	--	---	--	3	11	17	7.2	-
Wash.Nat'l AP	14	1013.5	1017.5	84	68	76.2	-.6	92	30	62	22	5	0	65	72	5.11	+.40	1.36	16	8	0.0	0	9.0	SSW	33	NW	20	5	8	18	7.3	5
WASHINGTON																																
Ellensburg	1727	953.6	1014.9	84	54	69.1	+.9	97	24	45	12	8	0	47	49	.17	-.08	.11	5	4	0.0	0	16.6	NW	--	---	--	25	5	1	2.1	-
Kelso	17	------	------	76	50	62.9	----	88	21	43	7	0	0	--	--	1.01	------	.47	5	0	0.0	0	----	---	--	---	--	14	9	8	4.5	-
North Head CO	194	1011.9	1019.3	60	53	56.7	-.5	66	26	51	21	0	0	--	--	1.39	+.43	.95	11	0	0.0	0	15.0	---	35	NW	11	4	8	19	7.5	3
Olympia	190	1010.8	1018.2	77	49	63.0	----	91	21	43	20	1	0	52	70	1.35	------	.93	5	0	0.0	0	5.0	S	--	---	--	15	8	8	4.5	-
Port Angeles	8	1018.0	1019.0	63	51	56.7	----	76	17	49	12	0	0	51	84	.63	------	.53	6	1	0.0	0	14.7	WNW	--	---	--	10	12	9	5.1	-
Seattle CO	----	------	------	---	--	----	----	--	--	--	--	--	--	--	--	------	------	----	--	--	---	---	----	---	25	S	28	--	--	--	---	6
Seattle	14	1016.9	1018.3	77	55	65.7	+.9	85	21	52	8	0	0	52	66	.82	+.16	.51	5	0	0.0	0	7.8	NNW	--	---	--	12	9	10	4.8	-
Seattle-Tacoma AP	379	1004.1	1018.1	75	52	63.6	----	86	21	47	8	0	0	52	70	1.00	------	.42	5	0	0.0	0	9.6	SW	--	---	--	11	11	9	4.9	-
Spokane	2357	946.5	1014.6	83	55	69.1	+.1	95	25	46	30	6	0	45	45	.56	-.13	.31	5	3	0.0	0	8.7	SSW	34	W	18	21	6	4	3.0	7
Stampede Pass CO	3960	882.2	1019.4	66	47	56.1	----	79	23	39	10	0	0	--	--	1.89	------	.96	8	1	0.0	T	12.4	---	28	---	18	17	5	9	4.1	-
Stevenson CO	319	------	------	77	56	66.1	----	93	21	50	30	1	0	--	--	.91	------	.70	4	0	0.0	0	----	---	--	---	--	21	4	6	3.0	-
Tacoma CO	127	1011.2	1018.0	73	54	63.8	+1.0	82	21	51	15	0	0	--	--	.46	-.14	.43	3	0	0.0	0	8.0	---	26	SW	28	14	8	9	4.6	7
Tatoosh CO	101	1016.6	1019.6	58	50	54.0	-1.1	63	21	47	8	0	0	52	93	2.71	+1.17	1.31	14	0	0.0	0	9.4	SW	29	S	8	4	7	20	7.4	4
Walla Walla AP CAA	1200	------	------	---	--	----	----	--	--	--	--	--	--	50	--	------	------	----	--	--	---	---	----	SSW	--	---	--	--	--	--	---	-
Walla Walla CO	949	978.7	1013.9	89	62	75.6	+1.6	103	25	54	12	17	0	--	--	.18	-.21	.12	3	3	0.0	0	5.5	---	24	W	28	26	2	3	1.7	8
Yakima	1058	975.6	1014.0	90	54	72.2	+.8	99	4	45	29	17	0	48	46	.33	+.05	.24	3	0	0.0	0	8.3	NW	--	---	--	25	4	2	1.9	-
WEST VIRGINIA																																
Elkins	1969	950.2	1018.1	78	57	67.0	-2.8	84	3	46	2	0	0	60	83	4.87	-.51	.95	18	9	0.0	0	3.4	S	26	W	18	0	9	22	8.6	4
Huntington	565	------	------	85	63	74.1	-1.2	89	3	54	1	0	0	--	--	7.31	+2.83	1.30	15	--	0.0	0	----	---	--	---	--	--	--	--	---	-
Parkersburg	615	------	------	82	63	72.9	-2.5	88	17	54	1	0	0	--	--	5.97	+1.68	1.32	13	11	0.0	0	----	---	20	NW	2	4	10	17	6.8	5
Petersburg	1013	------	------	82	59	70.8	----	94	31	51	7	1	0	--	--	2.76	------	.77	15	2	---	---	----	---	--	---	--	--	--	--	7.6	-
WISCONSIN																																
Green Bay	689	989.8	1015.7	78	55	66.4	-3.6	89	11	45	14	0	0	57	73	6.50	+3.04	2.05	10	8	0.0	0	7.6	SW	59	NW	23	9	8	14	6.3	6
La Crosse	669	990.5	1014.8	79	57	68.2	-3.6	88	28	49	6	0	0	60	76	5.10	+1.20	1.47	14	10	T	T	7.2	S	29	NW	12	--	--	--	5.6	7
Madison	857	984.4	1015.7	82	58	69.7	-2.4	92	29	45	14	2	0	58	71	10.93	+7.05	5.25	11	8	0.0	0	8.3	S	41	SW	12	--	--	--	5.4	7
Milwaukee	674	990.5	1015.1	79	59	68.7	+.5	89	12	48	14	0	0	58	72	6.07	+3.24	3.30	9	3	0.0	0	9.3	SE	44	SW	1	8	14	9	5.4	6
WYOMING																																
Casper	5346	839.1	1012.9	81	52	66.3	-5.8	91	10	42	30	1	0	45	51	.88	-.32	.35	10	14	T	T	9.1	SW	--	---	--	10	19	2	4.3	-
Cheyenne	6139	814.4	1014.2	77	51	63.5	-3.2	90	1	42	13	1	0	47	61	2.79	+.69	.65	13	18	T	T	8.9	W	36	W	1	8	15	8	5.5	7
Lander	5563	831.4	1014.9	80	51	65.4	-2.0	90	1	42	30	1	0	43	48	.70	+.01	.24	9	8	T	T	7.2	---	38	SW	19	15	14	2	3.7	7
Rock Springs	6741	797.2	1015.2	79	50	64.5	-3.7	89	1	40	30	0	0	39	46	.92	+.18	.42	9	15	T	T	12.7	W	--	---	--	11	15	5	4.5	-
Sheridan	4021	885.5	1014.8	82	52	66.9	-1.5	93	10	44	17	6	0	48	56	2.16	+.94	.97	12	15	T	T	7.4	S	44	NW	10	12	16	3	4.5	7

Data from airport unless otherwise specified. CO indicates data from city office.

able 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days Max. 90° F. or above	Temperature: No. of days Min. 32° F. or below	Temperature: Average dew point	Average relative humidity*	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days 01 inch or more	Precipitation: No. of days With thunderstorms	Snow, Sleet Hail: Total	Snow, Sleet Hail: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile Speed	Wind: Fastest mile Direction	Wind: Fastest mile Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In.	In.	In.			In.	In.	M p h		M p h			0—3	4—7	8—10	0—10	%
PACIFIC AREA																																
anton Island	12	1010.2	1010.0	88	77	82.3	----	92	18	72	19	5	0	72	75	5.50	-----	2.12	9	0	0.0	0	----	---	--	---	--	11	15	5	4.7	--
ilo	26	1015.2	1016.7	81	67	74.3	----	84	9	63	14	0	0	67	72	8.96	-----	1.34	30	0	0.0	0	5.1	NE	--	---	--	0	12	19	7.7	--
onolulu CO	----	------	------	---	-	76.8	-.9	--	--	--	--	-	-	-	-	.40	-.79	----	--	--	---	---	----	---	26	NE	10	-	--	--	---	72
onolulu	12	1016.6	1017.3	84	72	78.0	----	85	1	69	14	0	0	65	69	.03	-----	.01	3	0	0.0	0	12.9	ENE	--	-	-	15	15	1	3.9	--
ihue	115	1012.9	1017.9	83	72	77.2	---	84	25	68	14	0	0	67	71	1.16	-----	.19	17	0	0.0	0	11.9	NE	--	---	--	4	21	6	6.0	--
ake Island	11	1013.9	1014.3	85	76	80.2	----	88	21	71	15	0	0	74	83	10.15	-----	2.20	21	1	0.0	0	10.8	E	--	---	--	0	10	21	8.1	--
idway Island	10	------	------	81	73	77.3	----	83	17	69	1	0	0	--	--	.90	-----	.50	14	0	0.0	0	---	---	-	-	-	6	17	8	5.7	--
PUERTO RICO																																
an Juan	9	1015.2	1017.2	85	75	79.9	----	90	13	71	18	1	0	74	83	11.23	-----	3.37	20	7	0.0	0	9.4	ENE	42	E	31	6	15	10	5.8	46
ALASKA																																
nchorage	134	1009.5	1014.2	66	48	56.7	-.3	78	10	40	1	6	0	48	73	.97	-.66	.30	11	1	0.0	0	3.3	S	29	S	10	2	7	22	8.3	33
nnette Island	110	1014.0	1018.3	60	51	55.5	-2.1	73	21	47	7	1	0	51	86	10.17	+4.47	2.37	21	0	0.0	0	7.8	SE	--	---	--	1	2	28	9.4	--
arrow	22	1013.9	1014.6	44	35	39.3	-.5	59	22	30	30	0	0	37	92	.56	-.29	.37	7	0	0.0	0	14.2	ENE	37	NE	28	3	14	14	7.1	--
ethel	21	1010.2	1011.9	63	50	56.5	+2.0	75	8	44	30	5	0	50	81	2.25	-.04	.42	17	0	0.0	0	----	SW	125	SSW	25	0	4	27	8.7	--
ordova	40	1012.9	1014.6	60	45	52.1	-.9	74	22	35	4	1	0	49	88	4.91	-.23	.77	23	0	0.0	0	2.5	E	--	---	--	1	3	27	9.2	--
airbanks	436	993.9	1010.8	75	49	62.0	+1.9	86	10	41	29	23	0	50	70	2.50	+.60	1.33	16	13	†††	††	T	4.7	W	45	N	3	2	5	21	7.9	43
alena	120	1008.5	1013.2	73	55	64.2	+3.7	82	23	45	19	22	0	32	68	1.07	-1.60	.33	9	5	0.0	0	7.0	SW	--	---	--	4	10	17	7.0	--
uneau	15	1015.4	1016.3	62	47	54.4	-1.1	79	10	36	8	5	0	49	84	7.07	+2.85	1.66	23	0	0.0	0	---	E	32	SE	29	2	6	23	8.7	19
otzebue	10	1009.8	1010.5	65	53	58.6	+5.6	79	23	44	31	7	0	52	82	.87	-.60	.42	8	0	0.0	0	12.8	E	--	---	--	1	8	22	8.0	--
cGrath	334	999.0	1011.5	71	51	60.9	+2.4	84	23	39	29	19	0	52	74	2.84	+.46	.65	14	7	†††	††	T	5.0	S	48	SW	16	3	8	20	7.7	--
ome	13	1010.5	1011.2	60	45	52.4	+2.5	69	18	36	8	0	0	49	88	1.69	-.81	.53	9	0	0.0	0	---	WSW	34	S	25	0	10	21	8.0	31
orthway	1713	949.9	1012.5	68	48	58.2	-.8	80	22	42	1	12	0	47	71	4.83	+1.94	1.53	16	6	0.0	0	5.2	NW	--	---	--	2	1	28	8.5	--
t. Paul Island	22	1008.1	1009.1	48	43	45.2	-.5	53	23	40	18	0	0	44	96	5.85	+3.25	---	26	9	0.0	0	---	---	--	---	--	0	0	31	9.9	--
miat	337	1001.7	1013.2	67	44	55.8	+3.3	79	9	36	29	15	0	50	82	.11	-.46	.07	5	2	0.0	0	7.6	E	--	---	--	9	11	11	5.6	--
ales	9	------	------	53	43	48.1	+2.0	62	23	36	2	0	0	---	--	1.03	-.33	.42	11	0	0.0	0	---	---	--	---	--	1	5	25	8.7	--
akutat	28	1014.7	1015.8	59	47	52.9	-.1	78	9	37	4	2	0	49	88	7.99	-.23	1.75	22	0	0.0	0	7.3	SE	†34	SE	5	1	4	26	9.0	--

No. of days Max. 70°F. or above for Alaskan Stations.
Data entered in column headed "Fastest mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
† Indicates hail

HEATING DEGREE DAYS

(Base 65°F.)

Table 4 — JULY 1950

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Birmingham (AP)	0	0	0
Mobile	0	0	0
Mobile (AP)	0	0	
Montgomery	0	0	0
Montgomery (AP)	0	0	
ARIZONA			
Flagstaff	44	44	43
Payson	1	1	
Phoenix	0	0	0
Phoenix (AP)	0	0	
Prescott	0	0	
Tucson	0	0	
Winslow (AP)	0	0	
Yuma (AP)	0	0	0
ARKANSAS			
Ft. Smith (AP)	0	0	0
Little Rock (AP)	0	0	0
Texarkana	0	0	
CALIFORNIA			
Bakersfield (AP)	0	0	
Beaumont	0	0	
Bishop (AP)	0	0	
Blue Canyon	8	8	
Burbank (AP)	0	0	
Eureka	290	290	281
Fresno (AP)	0	0	0
Los Angeles	0	0	1
Los Angeles (AP)	0	0	
Mt. Shasta	10	10	
Oakland (AP)	42	42	
Red Bluff (AP)	0	0	0
Sacramento	0	0	2
Sacramento (AP)	0	0	
Sandberg	0	0	
San Diego (AP)	0	0	5
San Francisco	215	215	196
San Francisco (AP)	107	107	
San Jose	3	3	
Santa Catalina	30	30	
Santa Maria (AP)	37	37	
COLORADO			
Alamosa	82	82	
Colorado Springs	38	38	
Denver			8
Denver (AP)			
Grand Junction (AP)	0	0	
Pueblo (AP)	0	0	3
CONNECTICUT			
Bridgeport (AP)	0	0	
Hartford (AP)	3	3	3
New Haven (AP)	1	1	3
DELAWARE			
Wilmington (AP)	0	0	
DIST. OF COLUMBIA			
Washington	0	0	0
Washington (AP)	0	0	
FLORIDA			
Apalachicola	0	0	0
Daytona Beach (AP)	0	0	
Fort Myers	0	0	
Jacksonville	0	0	0
Jacksonville (AP)	0	0	
Key West	0	0	0
Key West (AP)	0	0	
Melbourne (AP)	0	0	
Miami	0	0	0
Miami Beach*	0	0	
Int. Airport, Hialeah	0	0	
Orlando (AP)	0	0	
Pensacola	0	0	0
Tallahassee (AP)	0	0	
Tampa (AP)	0	0	0
West Palm Beach (AP)	0	0	
GEORGIA			
Albany	0	0	0
Atlanta	0	0	0
Atlanta (AP)	0	0	
Athens (AP)	0	0	
Augusta (AP)	0	0	0
Columbus	0	0	
Macon (AP)	0	0	0
Rome	0	0	
Savannah (AP)	0	0	0
Valdosta (AP)	0	0	
IDAHO			
Boise (AP)	10	10	9
Lewiston (AP)	9	9	
Pocatello (AP)	16	16	12
ILLINOIS			
Cairo	0	0	0
Chicago	3	3	6
Chicago (AP)	3	3	
Chicago University	2	2	
Joliet	1	1	
Moline (AP)	1	1	
Peoria (AP)	2	2	4
Springfield	0	0	0
Springfield (AP)	2	2	
INDIANA			
Evansville (AP)	0	0	0
Ft. Wayne (AP)	8	8	6
Indianapolis	0	0	1
Indianapolis (AP)	1	1	
INDIANA (cont'd.)			
South Bend (AP)	15	15	
Terre Haute (AP)	0	0	
IOWA			
Burlington (AP)	6	6	
Charles City	9	9	8
Davenport	1	1	2
Des Moines	2	2	1
Des Moines (AP)	3	3	
Dubuque	3	3	3
Keokuk	2	2	1
Sioux City (AP)	6	6	3
KANSAS			
Concordia	2	2	1
Dodge City (AP)	0	0	1
Goodland (AP)	8	8	
Topeka	0	0	0
Topeka (AP)	0	0	
Wichita (AP)	0	0	0
KENTUCKY			
Lexington (AP)	0	0	1
Louisville	0	0	0
Louisville (AP)	0	0	
Pikeville	M	0	
LOUISIANA			
Baton Rouge (AP)	0	0	0
Lake Charles (AP)	0	0	
New Orleans	0	0	0
New Orleans (AP)	0	0	
Int. Airport, Moisant	0	0	
Shreveport (AP)	0	0	0
MAINE			
Caribou (AP)	78	78	
Eastport	124	124	158
Greenville	59	59	69
Portland (AP)	26	26	28
MARYLAND			
Baltimore	0	0	0
Baltimore (AP)	0	0	
Bethesda*	0	0	
Dist. Heights*	0	0	
Frederick	0	0	
Riverdale*	0	0	
Takoma Park*	0	0	0
MASSACHUSETTS			
Boston (AP)	0	0	7
Milton	8	8	
Nantucket (AP)	9	9	15
Pittsfield	44	44	
MICHIGAN			
Alpena	55	55	53
Detroit (AP)	9	9	7
Escanaba	93	93	54
Grand Rapids	8	8	8
Grand Rapids (AP)	27	27	
Iron Mountain*	82	82	
Lansing (AP)	22	22	
Marquette	131	131	86
Muskegon (AP)	48	48	
Sault Ste. Marie (AP)	137	137	91
Traverse City (AP)	63	63	
Ypsilanti (AP)	8	8	
MINNESOTA			
Duluth	145	145	80
Duluth (AP)	132	132	
International Falls	95	95	
Minneapolis (AP)	8	8	8
Rochester	13	13	
St. Cloud	23	23	23
St. Paul (AP)	8	8	
MISSISSIPPI			
Jackson (AP)	0	0	0
Meridian (AP)	0	0	0
Vicksburg	0	0	0
MISSOURI			
Columbia	0	0	0
Columbia (AP)	1	1	
Kansas City (AP)	0	0	0
St. Joseph	0	0	
St. Louis	0	0	0
St. Louis (AP)	0	0	
Springfield (AP)	0	0	1
MONTANA			
Billings (AP)	32	32	14
Butte (AP)	194	194	
Glasgow	30	30	
Great Falls (AP)	53	53	
Havre (AP)	35	35	27
Helena (AP)	61	61	43
Kalispell	68	68	66
Missoula (AP)	59	59	37
NEBRASKA			
Grand Island (AP)	4	4	
Lincoln	2	2	1
Lincoln (AP)	2	2	
Norfolk (AP)	9	9	
North Platte			M
North Platte (AP)	10	10	4
Omaha (AP)	1	1	1
Valentine	41	41	8
NEW HAMPSHIRE			
Concord	17	17	18
Mt. Washington Obs.	527	527	
NEW JERSEY			
Atlantic City	0	0	1
Newark (AP)	0	0	1
Trenton	0	0	1
NEW MEXICO			
Aubuquerque (AP)	0	0	0
Clayton (AP)	3	3	
Roswell (AP)	0	0	0
Raton	21	21	
NEW YORK			
Albany (AP)	12	12	4
Bear Mountain	12	12	
Binghamton	13	13	15
Binghamton (AP)	22	22	
Buffalo (AP)	13	13	15
Canton	12	12	27
New York	0	0	1
La Guardia Field	0	0	
Oswego	13	13	
Rochester (AP)	9	9	10
Schenectady	7	7	
Syracuse (AP)	M	8	13
NORTH CAROLINA			
Asheville	0	0	2
Asheville (AP)	0	0	
Charlotte	0	0	0
Charlotte (AP)	0	0	
Greensboro (AP)	0	0	
Hatteras	0	0	0
Raleigh	0	0	0
Raleigh (AP)	0	0	
Wilmington	0	0	0
Winston-Salem (AP)	0	0	
NORTH DAKOTA			
Bismarck (AP)	41	41	21
Devils Lake	63	63	42
Fargo	26	26	
Grand Forks	6	6	32
Pembina (AP)	65	65	
Williston	50	50	28
OHIO			
Akron (AP)	7	7	
Cincinnati	0	0	1
Cincinnati (AP)	0	0	
Cleveland	4	4	7
Cleveland (AP)	2	2	
Columbus	0	0	2
Columbus (AP)	3	3	
Dayton (AP)	2	2	2
Sandusky	4	4	3
Toledo (AP)	8	8	5
Youngstown (AP)	5	5	
OKLAHOMA			
Oklahoma City	0	0	0
Oklahoma City (AP)	M	0	
Tulsa (AP)	0	0	
OREGON			
Baker	53	53	54
Baker (AP)	49	49	
Burns			
Eugene (AP)	15	15	
Meacham	99	99	
Medford (AP)	3	3	7
Pendleton (AP)	7	7	
Portland	12	12	27
Portland (AP)	20	20	
Roseburg	8	8	23
Salem (AP)	14	14	
Sexton Summit	82	82	
Troutdale	27	27	
PENNSYLVANIA			
Allentown	3	3	
Curwensville	51	51	
Erie	10	10	8
Harrisburg (AP)	0	0	1
Park Place	23	23	
Philadelphia	0	0	0
Philadelphia (AP)	0	0	
Pittsburgh	0	0	2
Pittsburgh (AP)	0	0	5
Reading	0	0	1
Scranton	2	2	6
Williamsport (AP)	2	2	5
RHODE ISLAND			
Block Island	1	1	10
Providence	0	0	6
Providence (AP)	3	3	
SOUTH CAROLINA			
Charleston	0	0	0
Charleston (AP)	0	0	
Columbia	0	0	0
Columbia (AP)	0	0	
Florence	0	0	
Greenville (AP)	0	0	0
Spartanburg	0	0	
SOUTH DAKOTA			
Huron (AP)	15	15	10
Pierre	18	18	4
Rapid City (AP)	44	44	15
Sioux Falls (AP)	23	23	
TENNESSEE			
Bristol (AP)	0	0	
Chattanooga	0	0	
Chattanooga (AP)	0	0	0
Knoxville (AP)	0	0	0
TENNESSEE (cont'd.)			
Memphis (AP)	0	0	0
Nashville (AP)	0	0	0
TEXAS			
Abilene (AP)	0	0	0
Amarillo (AP)	0	0	1
Austin (AP)	0	0	0
Big Spring (AP)	0	0	
Brownsville (AP)	0	0	0
Corpus Christi (AP)	0	0	0
Dallas (AP)	0	0	0
Del Rio	0	0	0
El Paso (AP)	0	0	0
Ft. Worth (AP)	0	0	0
Galveston	0	0	0
Galveston (AP)	0	0	
Houston	0	0	
Houston (AP)	0	0	0
Laredo	0	0	
Lubbock	0	0	
Palestine	0	0	0
Port Arthur	0	0	0
Port Arthur (AP)	0	0	
San Angelo (AP)	0	0	
San Antonio (AP)	0	0	0
Victoria	0	0	
Wichita Falls (AP)	0	0	
Waco (AP)	0	0	
UTAH			
Milford	0	0	
Salt Lake City	3	3	0
Salt Lake City (AP)	3	3	0
VERMONT			
Burlington (AP)	7	7	23
VIRGINIA			
E.H.S. Alexandria*	0	0	
Cape Henry	0	0	0
Falls Church*	0	0	
Lynchburg (AP)	0	0	1
Norfolk	0	0	0
Norfolk (AP)	0	0	
Potomac Yards*	0	0	
Richmond	0	0	0
Richmond (AP)	0	0	
Roanoke (AP)	0	0	
Urbana	0	0	
WASHINGTON			
Ellensburg (AP)	21	21	
Kelso	78	78	
North Head	251	251	251
Olympia (AP)	81	81	
Port Angeles	253	253	
Seattle	26	26	67
Seattle (AP)	23	23	
Spokane (AP)	27	27	20
Stampede Pass	271	271	
Stevenson	37	37	
Tacoma	56	56	
Tatoosh Island	335	335	301
Walla Walla	0	0	5
Yakima (AP)	10	10	8
WEST VIRGINIA			
Elkins (AP)	14	14	15
Huntington (AP)	0	0	
Parkersburg	0	0	1
Petersburg	6	6	
WISCONSIN			
Green Bay	50	50	17
La Crosse	7	7	7
La Crosse (AP)	20	20	
Madison	14	14	8
Madison (AP)	16	16	
Milwaukee	26	26	13
Milwaukee (AP)	31	31	
WYOMING			
Casper (AP)	35	35	
Cheyenne (AP)	85	85	40
Lander (AP)	38	38	27
Rock Springs	26	26	
Rock Springs (AP)	45	45	
Sheridan (AP)	34	34	
ALASKA			
Anchorage (AP)	250	250	
Annette Island (AP)	290	290	
Barrow	786	786	
Bethel (AP)	264	264	
Cordova (AP)	392	392	
Fairbanks (AP)	102	102	
Galena (AP)	71	71	
Gambell			
Juneau (AP)	322	322	
Kotzebue (AP)	198	198	
McGrath (AP)	135	135	
Nome (AP)	385	385	
Northway (AP)	205	205	
St. Paul (AP)	606	606	
Yakutat (AP)	369	369	
Umiat	272	272	
NEVADA			
Elko	14	14	
Ely (AP)	35	35	
Las Vegas	0	0	0
Reno (AP)	5	5	8
Tonopah	9	9	5
Winnemucca (AP)	3	3	10

(NEVADA at end of table)

Data from city office unless otherwise specified. AP indicates data from airport. * Data from cooperative stations.

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Maryville and portions of Nodaway County, Mo.	1	3:30 a.m.					$1,000	Slight	Hail	Hailstones, averaging 3/4 inch in diameter, caused light and scattered damage to growing crops in most of Nodaway County. Considerable damage to a greenhouse in Maryville.
Vanstel, Mont.	1	8:30 a.m.	880	1 1/2				$3,200	do	
Payson (near) Ill.	1	Noon						20,000	do	Crops and apple orchards damaged by hailstones "size of hickory nuts".
Florence, Ariz.	1	Afternoon	†4				*1,000	*	Winds	Two garages unroofed, trees felled, and some cotton and small grain crops blown down.
Edwards County, Kans.	1	2-5 p.m.	†15	35					Hail	Storm moved from northwest. Hailstones from 1/8 to 3/4 inch in diameter. Heaviest portion of storm near center of county.
De Kalb, Mo.	1	Late afternoon	†2	6-8			10,000	25,000	do	Most damage to growing crops.
Riley County, Kans.	1	4:30 p.m.	†4	12		1	2,500,000	12,000	Hail, rain, and wind	Struck downtown Manhattan. Hailstones up to 2 1/2 inches in diameter smashed 16,000 windows in 11 greenhouses at Kansas State College, destroyed or damaged severely many roofs, and did extensive damage to automobiles. Damage to wheat, which was 70 percent harvested, estimated at 20 to 50 percent. Steady wind and heavy rain, with 3 1/2 inches in 90 minutes, accompanied storm.
Clay County, Kans.	1	4:40-6:05 p.m.			0	0			Hail and tornado	Funnel cloud observed 10 miles northeast of Wakefield; disappeared without coming to ground. Slight hail damage to young corn.
Wauzeka, Crawford County, Wis.	1	5 p.m.						300	Hail	Hailstones about size of hickory nuts.
Northern Grant and southern Richland Counties, Wis.	1	5:30 p.m.		10				10,000	do	Hailstones 1 to 1 1/2 inches in diameter. Tobacco plants, corn, apple trees, and gardens between Boscobel and Fennimore destroyed.
Danvers, Mont.	1	5:30 p.m.	†4	100				75,000	do	Some hail as large as walnuts.
Denton, Mont.	1	5:30 p.m.	†1-3	10			1,500	See remarks	do	Considerable damage to crops, amount not estimated.
Glacier County (from Cut Bank northward), Mont.	1	5:30 p.m.					See remarks	See remarks	do	Considerable damage to crops and property.
Poynette and vicinity, Wis.	1	6 p.m.	†2	10			500	20,000	do	Hailstones about size of walnuts completely covered ground in places. Some building roofs damaged. Corn and oat crops destroyed.
Valier, Mont.	1	6 p.m.	†1	13			5,000	750,000	do	Three separate hailstorms same area.
Kolin to Roundup, Mont.	1	6 p.m.	†1					See remarks	do	Severe damage to crops.
Brady, Mont.	1	6:30 p.m.	†2 1/2	45			See remarks	1,500,000	do	Many windows broken by 3/4 inch hail, but total damage nearly all to crops.
Floweree, Mont.	1	6:30 p.m.	†1-3	25			See remarks	200,000	do	Some damage to roofs and windows. Hail larger than golf balls.
Lewistown Mont.	1	6:30 p.m.	†2					See remarks	do	Considerable damage to wheat.
Clarksdale, Mo.	1	7:30-7:45 p.m.	†1 1/2	4 1/2			Light	Moderate	do	Damage to property confined to roofs and window panes. Crop damage estimated as 50 percent to wheat and oats and 30 percent to corn over an area of approximately 7 square miles.
Forsyth, Mont.	1	7:45 p.m.	†2	20			See remarks	See remarks	Hail and wind	About 50 percent crop damage to many fields. Roofs blown off barns. Forsyth weather station wrecked.
Independence, Buchanan County, Iowa	1	Near Sunset	Narrow	Short	0	0			Tornado	About 100 trees uprooted, damaging several homes. One uprooted tree fell on bridge across Wapsipinicon River, causing considerable damage.
Waltham, Mont.	1	8 p.m.	†2	35			*75,000	*	Hail	Considerable damage to windows and siding, but most damage to crops.
Rosebud, Mont.	1	8 p.m.	†3	15			5,000	50,000	Hail and wind	

See footnotes at end of table.

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Carter, Mont.	1	8 p.m.	†15	150				See remarks	Hail	Hail as large as golf balls caused considerable damage to crops.
Stanford, Mont.	1	8:50 p.m.	†3	4				$30,000	do	
Dutton, Mont.	1	Evening	†7	30				100,000	do	
Kinsey, Mont.	1	Evening	†1	4			$1,000	3,000	Hail and wind	
Muscatine County, Iowa	1	Night						50,000	Hail and rain	In northern part of county many fields of corn and oats flattened by hail. Some water damage to crops near Nichols. At Muscatine, 3 inches of rain fell in about 45 minutes.
Ryegate, Mont.	1	11:30 p.m.	†2	15			See remarks	See remarks	Hail and wind	Fifty to 100 percent damage to 6 sections of wheat. Much damage to buildings.
Billings (southwest of), Mont.	1							See remarks	Hail	Severe hail damage to 3,000 acres of wheat.
Roundup (south of), Mont.	1		†7	25			5,000	30,000	do	
Dickinson County, Kans.	1		†2	8	0	0			Hail and tornado	Hail damaged crops in 15 sections of land northwest of Hope. Small tornado just west of Donegal (near Hope) destroyed machine shed and several small buildings. Storm moved eastward.
Saline County, Kans.	1								Hail and rain	Hail size of walnuts in narrow band across Salina from southeast to northwest. Main street almost covered with stones. Heavy rain shower accompanied hailstorm. Trees and shrubs damaged. One greenhouse reported 600 windows broken.
Riley County, Kans.	1				0	0			Tornado	Small tornado east of Bela about 20 miles west of Manhattan. Several barns and a windmill blown down
Payson (near), Ill.	2	9 a.m.					3,000		Electrical	Barn destroyed by lightning.
Helena, Mont.	2	3:15 p.m.			1	7			do	Lightning strike killed one baseball player instantly, injured seven other players.
Beaufort County, N.C.	2	4 p.m.						2,000	Hail	Area of damage 6 square miles.
Union County, N.C.	2	4 p.m.							do	Damage included with storm of 14th in same county.
Hamilton County, (southwestern portion south of Phillips), Nebr.	2	4 p.m.	†1	4					do	Considerable damage to crops, chiefly wheat and corn. Movement southeastward.
Sheridan and Gove Counties, Kans.	2	4 p.m.	†3	35			*	*1,000,000	Hail, winds and rain	Two severe hailstorms, about 30 minutes apart, caused extensive damage to property and crops. Both storms began in northwestern Sheridan County through Hoxie, across the county in a southeasterly direction, and 6 miles into Gove County. Damage to crops 100 percent in much of storm area. Extensive damage to property in Hoxie and other towns. Hail accompanied by strong winds and rain. Hailstones averaged about 1/2 inch in diameter.
Decatur and Sheridan Counties, Kans.	2	4:40 p.m.	†1 1/2	16				50,000	Hail	Hailstones averaged 1/2 inch in diameter. Storm moved from northwest causing damage near Sheridan-Decatur County line as far east as Dresden.
Scott County, Kans.	2	7-7:15 p.m.	†7	25	0	0	1,000,000	750,000	Hail, rain, and tornado	Severe hailstorm, accompanied by heavy rain amountin to 7 inches at Scott City, caused severe damage to property and crops. An estimated 400,000 bushels o wheat entire loss. Every tar and composition roof Scott City ruined; glass damage heavy and about 1,0 automobiles badly dented. Hailstones ranged from size of marbles to baseballs. Small tornado hit Scott City Airport during rain-and hailstorm, damaging hangars considerably and effecting complete l to one plane. Hail path extended from north-centra part of County to 8 miles east of Shallow Water.
Hamilton County (central portion near Aurora), Nebr.	2	7:30-8 p.m.	†3	9			Slight	135,000	Hail	Wheat, oats, and corn damaged.

See footnotes at end of table.

Table 4—Continued JULY 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Wichita County, Kans.	2	8:15 p.m.	†8	20			$150,000		Hail	Storm moved from southwestern to northeastern part of county. Stones ranged from 1/2 to 2 inches in diameter.
Saunders County, (southern portion), Nebr.	2								do	Considerable damage to crops.
Logan County, Kans.	2								Hail and rain	Several fields just east of Oakley wiped out.
Faulk County, S. Dak.	2								Hail	Crop loss 100 percent.
Potter County, S. Dak.	2								do	Crop loss 100 percent.
Minneapolis, Minn.	3	4:21-4:25 p.m.							do	Light to heavy hail occurred in the loop district and in some other portions of city. Hailstones unusually numerous in loop district, especially in vicinity of U.S. Court House. Hailstones measured 1/4 inch in diameter and over. In vicinity of U.S. Court House, ground completely covered and gutters filled after 4 minutes of continuous hail.
Akron (10 to 15 miles southwest), Colo.	3	4:30-5:00 p.m.	†2	10				$5,000	do	Damage limited to growing crops.
Dodge County (between Fox Lake and Beaver Dam), Wis.	3	5:50 p.m.	†1/2					15,000	do	Hailstones ranged up to size of walnuts. More than 50 acres of canning peas destroyed; also some grain and corn.
Cranmoor, Wood County, Wis.	3	Afternoon	†1	3				15,000	do	Hailstones fell on cranberry bogs, knocking blossoms from cranberry vines.
South Bend (3 miles west-southwest of Airport), Ind.	3	6:20 p.m.			0	0	0	0	Tornado	Apparently moved northeastward. No damage. Passed through open fields and dissipated just north of Airport. Did not reach ground with any great intensity.
Greer, Ariz.	4	10 a.m.				1			Electrical	Farmer struck on head by lightning. The bolt coursed down his spine, causing critical injuries.
Sedgwick, Colo.	4	12 noon	†3	8			30,000	1,000	Hail	Stones reached size of hens' eggs. Damage mostly to crops. Some chickens and small pigs killed.
Hamden, Conn.	4	2 p.m.			3	5			Electrical	During a relatively mild thunderstorm, a single bolt killed three members of an outdoor family birthday party; five others more or less seriously burned.
Lynchburg and vicinity, Va.	4	2-4 p.m.							Wind and electrical	Trees uprooted; phone and power lines damaged.
Aroya (near), Colo.	4	4 p.m.	†1	3				200	Hail	Storm mostly to south of Aroya. Stones size of peas to marbles. Moisture did more good than harm from hail in some portions of area.
Rawlins County, Kans.	4	4 p.m.							Hail and rain	Hail near State line caused 25 to 50 percent damage to crops on a few farms. Heavy rain accompanied hail and was general over county.
Richmond and vicinity, Va.	4	4-5 p.m.							Wind and electrical	Many trees blown down; plate glass windows broken; high tension lines toppled. Considerable minor damage.
Rawlins, Wyo.	4	Afternoon					Light		Flash flood	Basements flooded.
Danville, Va.	4	Night					5,000		Electrical	Homes struck by lightning which also damaged church steeple.
Kentuck, Va.	4	P.m.					3,000		do	Frame house struck by lightning and burned.
Glenwood, Pittsylvania County, Va.	4	P.m.					1,500		do	Frame house struck by lightning and burned.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Allegheny County, Pa.	5	9:30-11 a.m.			3	1			Rains and flash floods	Excessive rains, measuring 2.00 inches and estimated at 4.00 inches locally, sent flash floods roaring down narrow valleys along Allegheny and Ohio Rivers from Moon Township to Sharpsburg. Man killed when a house trailer careened against pole he was holdin onto. Two others killed when swept away by flood. Waves of flood waters, up to 3 feet high, washed away portions of trailer camp, flooded houses and stores, and eroded hillsides, causing property damage of several hundred thousand dollars. Several cars and 16 house trailers carried away and left damaged farther downstream. More than 100 persons rescued from trailer camp. Twenty other homes washed out in Flaugherty Run area. A tavern and dairy damaged by roaring torrent which swept two mi trucks and hundreds of bottles and cases downstrea Sections of Coraopolis had up to 4 feet of water o streets with many homes and business places floode above first floor level. In Etna-Sharpsburg area scores of homes flooded as Little Pine Creek overflowed; 70 homes flooded in Etna. Sharpsburg reported heavy washouts of mud and debris from overhanging hillsides.
Titusville, Pa.	5	12:30-1:30 p.m.							Rain	An unofficial reading in Titusville gave total of 1.8 inches in about an hour's time; caused flooding of basements and damage to some heating systems. Clogged sewers helped spread water damage.
Wheatland and vicinity, Wyo.	5	1:30 p.m.	†3	9			$10,000	$90,000	Hail and wind	Principal damage to 23 sections of small grain, corn, and sugarbeets, and to neon signs and windows
Baltimore, Md.	5	4-6 p.m.							Electrical and rain	Scores of streets and cellars flooded, manhole covers blown off due to overloaded sewers. Flooding in at least three locations in streets reported three to four feet in depth. Motorist ran into an uncovered manhole and had to be pulled out by tow truck. In eastern part of city (Middle River area) lightning struck a clump of trees and knocked out several telephone circuits.
Richmond, Va.	5	4 p.m.							Wind and electrical	Telephone wires downed, trees felled; electrical service curtailed. Practically all in west end and north side.
Laramie County (eastern portion), Wyo.	5	4:30 p.m.	†4	20			2,500	50,000	Hail	Damage to grain crop; in some fields damage 100 percent. Some poultry killed; livestock injured. Automobiles and buildings damaged.
Ryegate, Mont.	5	6 p.m.	1320	4				1,000	do	
Berks and Lehigh Counties, Pa.	5	6-8:30 p.m.			0	2			Tornadoes, other winds, and thunderstorms	Path of wind-smashed, roofless buildings, uprooted trees, and snarled and broken wires stretched from New Smithville to Lehigh River north of Fullerton. Tornado struck farm, lifting a large cherry tree from ground, plucked rows of corn from fields, and lifted a 36x52 foot barn an estimated 30 feet into the air and dropped it in pieces on car which was still on barn floor. Three-quarters of roof of hotel and store blown away. Tin roof from a fruit-stand blown across power and phone lines, putting Radio Station WSAN-AM off the air. Two minor injuries caused by flying debris. Some witnesses reported black funnels as being several in number. A partial estimate of damage to cornfields, orchard and one automobile is $15,000. Storm traveled from southwest to east. In addition, four separate thunderstorms reported during period. Much other damage to smaller buildings, orchards, and shade trees.
Dauphin County (near Gratz), Pa.	5	Near sunset	12		0	0			Tornado, other winds, and rain	Storm cloud described as a "black hollow-shaped twister, its tail whirling like a dervish". At least three barns unroofed and three chicken houses shattered, trees uprooted, and some field crops damaged by high winds that skipped through Hegins Valley area. Fallen trees knocked out power lines to rural areas.
Tucumcari, N. Mex.	5-6	8:25 p.m. - 1 a.m.					15,000		Rain	Damaged irrigation canals and laterals. Damage to crops impossible to estimate.
Era, Dinwiddie County, Va.	5	Night					5,000		Electrical	Fire resulting from a lightning bolt destroyed church; one house also struck, but resulting fires quickly put out.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Claremont, N.H.	5-6	8 p.m. 5th-3 a.m. 6th					$8,000		Thunder-storm and rain	4.71 inches of rain in 7 hours damaged highways and electrical installations; washout of B.&.M., R.R. tracks caused suspension of rail service.
Lewisville area, Idaho	6	5 p.m.				2	500	$30,000	Electrical, hail, rain, and wind	Hailstones up to 1/2 inch diameter beat down potato vines and garden truck, riddled beet tops, and flattened hay and grain. Lightning shocked two persons and killed three head of cattle.
Columbia, S.C.	6	8:45 p.m.				3	900		Rain	Heavy downpour causing poor visibility was responsible for an automobile accident in which three persons were injured and two cars damaged.
Hancock, Brooke, and Ohio Counties, W.Va.	6					1			do	Rains caused flash floods in small tributaries of the Ohio River, resulting in heavy crop damage; several road closures on four major highways, one of which closures caused by earth slide; several garages and homes flooded, and about 100 chickens swept away. Man injured helping to drain flooded coal pit.
Espanola, N. Mex.	7	2-6:30 a.m.							do	Buildings damaged, some caved in. Water approximately 3 to 4 feet deep.
Chino Valley (5 to 6 miles south), Ariz.	7	11:25 a.m.			0	0	0	0	Tornado cloud	Tornado cloud formed 5 to 6 miles south of Chino Valley and moved northward. Funnel appeared to be about 1,000 feet long, and at its lowest point reached within about 1,000 feet of the surface. High wind, rain, and lightning occurred at Chino Valley, point of observation. Funnel observed from 11:25 to 11:35 a.m.
Prescott (10 miles northwest), Ariz.	7	11:33 a.m.			0	0	0	0	do	Observed by airport station personnel. Estimated to be about 10 miles northwest of Municipal Airport, moving from northwest to north. Funnel did not reach ground. Observed from 11:33 to 11:42 a.m. (Probably same tornado cloud observed at Chino Valley).
Fort Huachuca (5 miles northeast), Ariz.	7	2:30 p.m.			0	0	0	0	do	Tornado cloud observed about 5 miles northeast of Ft. Huachuca. Funnel did not reach ground.
Gila Bend vicinity, Ariz.	7	4-11:59 p.m.	†2-10				15,500	10,000	Thunder-storms and flash floods.	Heavy thundershowers in mountains southeast of Gila Bend caused flash floods which passed through town. About 20 dwellings flooded, highway and railroad grades washed out in several places, canal bank damaged extensively, and a railroad bridge washed badly. About 20 hogs drowned.
Rupert-Minidoka area, Idaho	7	8:30 p.m.		6				50,000	Electrical and hail	Hail beat leaves off beans, peas, potatoes, and garden truck. Flattened about 500 acres dry-land wheat.
Day County, S. Dak.	7								Hail and wind	Crop loss 100 percent.
Codington County, S. Dak.	7								Hail, wind, and rain	Watertown power plant 75 percent damaged from back water. Crop loss 50 percent.
Winslow, Ariz.	8	11:42 a.m.			0	0	0	0	Tornado cloud	Tornado cloud observed to southwest of Winslow about midway between Meteor Crater and Chavez Pass. Tornado cloud moved north-northeastward. Funnel did not reach ground. First funnel reached halfway to ground then withdrew into cloud, followed a few seconds later by another funnel which was a very thin cylinder with no appreciable taper. This funnel reached near ground, broke loose from the cloud and evaporated.
Floweree (west of), Mont.	8	4 p.m.						See remarks	Hail	Hail up to 6 inches in circumference damaged about 10,000 acres of grain in varying degrees.
Hamilton and Merrick Counties, Nebr.	8	5:30-7:20 p.m.	†6	21			30,000	550,000	Hail and winds	Some livestock, especially chickens, lost. Farm buildings blown down.
Gosper County (north and central portions), Nebr.	8	8:20 p.m.	†1	10					do	Considerable damage to wheat and corn. Wind wrecked machine shed.
Marshall County, Kans.	8	10:45 p.m.	85	1	0	0	5,000	Slight	Tornado	Struck farm 8 miles west of Marysville, wrecking 4 farm buildings and twisting house slightly on its foundation. Storm from south scattered debris along Highway 36 north of farm. Storm apparently lifted immediately after, as no other damage reported.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Cheyenne and Rawlins Counties, Kans.	8	Evening	†5						Hail	Storm progressed from southwest of Bird City to northeast of McDonald. In center of path near Bird City wheat losses almost 100 percent. Path of most severe damage quite narrow.
Pierre, S. Dak.	8						$70,000		Flash flood	Basements of business district flooded due to inadequate storm sewer system.
Nance and York Counties, Nebr.	8-9	Night	†25	65	5			See remarks	Rains and flash floods	Rain of 13.15 inches fell at York. Preliminary estimates of damage to crops and property over $2,000,000. The five persons drowned were swept off highway in Nance County by floods. Highest flood of record in Big Blue River at Crete.
Nezperce area, Idaho	9	Afternoon	2	10				$50,000	Electrical, hail, and rain	Followed same path as storm of June 15, 1950. Hail flattened grain and pea crops, particularly southwest of Nezperce.
Anson County, N.C.	9	4 p.m.						1,400	Hail	Area of damage 1/2 square mile.
Sampson County, N.C.	9	5 p.m.						1,600	do	Area of damage 1 square mile.
Kiowa County, Kans.	9	6 p.m.	†2	8					do	Storm moved from northeast and covered area northeast of Greensburg. Hailstones from size of hazel nuts to hens' eggs and covered only about 10 percent of surface. Little damage.
Lindsay, Mont.	10	5 p.m.	†1					See remarks	do	About 25 percent damage to 100 acres of wheat.
**	**									
Salt Creek Oil Fields, Wyo.	11	2:30 p.m.	†4				15,000	Light	Hail and wind	Slight damage from hail. Several oil derricks blown down by wind.
Hudson, N. Mex.	11	4-4:40 p.m.	500	12	0	0	350		Tornado, wind, and rain	Storm moved northeastward. Damage to farm buildings. Tornado damage 50 percent; wind damage 30 percent; rain damage 20 percent.
Denton (10 miles northeast of), Mont.	11	5 p.m.	440	3				See remarks	Hail	Fifty to 100 percent damage to 200 acres of grain.
Woodlawn, Md.	11	7 p.m.			1				Electrical	Man killed when struck by lightning.
Plymouth County (southwestern portion), Iowa	11	Evening							Rain	Unofficial 4 inches of rain in short period of time. The heavy run-off carried away thousands of dollars worth of topsoil; also washed out several bridges and numerous culverts and grades. A section of the Great Northern Railway washed out between Hinton and Merrill, causing a seven-car derailment that night.
**	**									
Lower Connecticut Valley, eastern Mass.; South-Cheshire County, N.H.	12	Early morning and afternoon			1	1	16,000		Electrical	Lightning-set fires destroyed house, barn, store, and seven valuable cows; building burned at "Cathedral of the Pines" in Rindge, N.H. Man killed by lightning in Grafton, Mass.
Middletown and East Hampton, Conn.	12	5 p.m.		10	0	0	4,000		Tornado	Funnel-shaped cloud observed. Tobacco barn destroyed and other local damage.
Warren County, N.C.	12	5 p.m.						2,000	Hail	Area of damage 5 square miles.
Ridgefield, Conn.	14	7:30-7:35 a.m.	100	5	0	2	100,000		Tornado	Described as a "twister"; lashed a 300-foot swath through center of town.
Berkshire County, Mass.	14	Early morning					800		Thunderstorm	Squalls felled trees; wires damaged.
Union County, N.C.	14	3 p.m.						3,150	Hail	Damage includes loss from storm of 2d in same county.
Douglas (near), Ariz.	14	3-5:30 p.m.	880				1,000		Flash floods	Heavy thunderstorms in mountains resulted in flash floods in valley north of Douglas. Flood waters washed out about 1/2 mile of dirt dams.
Martin County, N.C.	14	4 p.m.							Hail	Damage included with storm of 21st in same county.
Alexander County, N.C.	14	4:30 p.m.						2,500	do	Area of damage 2 square miles.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Divide County, N. Dak.	14	Evening		60	0	0	$15,000	$10,000	Tornado and hail	Buildings damaged, and some barns and granaries completely wrecked on several farms. Area hardest hit was about 8 miles south of Crosby. Fortuna to the northwest suffered considerable damage. Hail accompanied storm, damaging crops. Barn thrown against a house and all windows in house broken.
Mountrail, Ward, and McHenry Counties, N. Dak.	14	Evening					10,000	20,000	Wind and hail	Hail and twisting winds struck across the northern parts of Mountrail and Ward Counties, causing considerable damage to farm buildings and crops. One farmer estimated $3,000 damage to barn which was moved off foundation and destroyed. Near Foxholm crop losses ranged up to 75 to 100 percent.
Leeds, Ala.	14				1				Electrical	Death caused by lightning which struck clothesline while family wash was being removed.
Pennington County (eastern portion), Minn.	14-15	11 p.m.-1 a.m.					5,000		do	A church destroyed by fire after being struck by lightning.
Lenoir County, N. C.	15	1:30 p.m.						4,800	Hail	Area of damage 1 square mile.
Vance County, N. C.	15	2 p.m.							do	Damage included with storm of 18th in same county.
Chowan County, N. C.	15	3:30 p.m.						8,300	do	Area of damage 2 square miles.
Choteau (near), Mont.	15	3:30 p.m.	†2	6				125,000	do	
Franklin County, N.C.	15	4 p.m.						180,500	do	Area of damage 3 1/2 square miles.
Wilson County, N.C.	15	4 p.m.						17,300	do	Area of damage 3 square miles.
Jewell County, Kans.	15	4-6 p.m.							do	Hail caused heavy, local losses in five townships of southern Jewell County. Uncut wheat fields suffered 30 to 90 percent losses, and some corn damaged beyond recovery. Considerable property damage to windows, screens, and roofs. Some severe lightning.
Montgomery County, N.C.	15	6 p.m.						3,000	do	Area of damage 4 square miles.
York County, Nebr.	15	6-7 p.m.	†2	6				15,000	do	Wheat and corn damaged.
Burt County (western portion near Oakland and Craig), and Cuming County (extreme southeastern portion), Nebr.	15	6:30 p.m.	400	10	0	3	*600,000	*	Tornado	Moved eastward.* Most of destruction was to farm houses and other farm buildings. Many hogs lost. Schoolhouse destroyed.
Kearney County (west-central portion), Nebr.	15	10:30 p.m.	†4	9				See remarks	Hail	Considerable damage to wheat.
Geary County, Kans.	15	10:30 p.m.	†2-3	16			15,000	Little	Wind	Storm originated 8 miles south of Junction City and moved to point 3 miles north of Alta Vista. Roofs damaged on numerous buildings. Corn flattened in some fields.
Iowa, northern portion	15	Night						300,000	Hail	In Sioux and O'Brien Counties storm cut a 10-mile-wide swath from Orange City to Sheldon to Primghar. Damage here estimated at $200,000. In northeast, near New Hampton, West Union, Oelwein, and Elkader, spotted occurrence of hail caused local, heavy losses.
Wisconsin, southwestern portion	15-16	Evening 15th afternoon 16th			1		500,000	1,000,000	Electrical, rain, and wind	Torrential rains fell in Grant, Crawford, Richland, Iowa, and Lafayette Counties, with some stations reporting more than 6 inches in a 24-hour period. Flash floods occurred on the Kickapoo, Pecatonica, and other small streams in area. Darlington sustained the greatest flood damage in its history. Cities below Darlington on the Pecatonica sustained considerable flood damage also. Steuben, on the Kickapoo, partly inundated. Many small highway bridges washed out or made impassable. Train service in above mentioned counties halted because of numerous washouts. Extremely high winds demolished more than a score of barns. Many farm animals drowned. Some cattle struck by lightning, and some killed when

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
										barns wrecked. A large acreage of growing crops ruined due to flooding or erosion. Electric and telephone services disrupted throughout southwestern Wisconsin. Some storm damage also in south-central and southeastern counties.
Dalys, Mont.	15							$5,000	Hail	Severe local damage to truck gardens.
Howard County, Nebr.	16	Noon	†3	5				5,000	do	Small grain damaged moderately.
Memphis, Hall County, Tex.	16	5 p.m.						1,500,000	do	25,000 acres of cotton and 15,000 acres of feed crop destroyed.
Morrill County (near Broadwater), Nebr.	16	4:30 p.m.-5:30 p.m.	†2	6				50,000	do	Losses principally to beans and corn.
Tucson, Ariz.	16	3:30-5:30 p.m.					$6,000		Electrical	Severe lightning and thundershower caused power failures. Two lightning fires caused total destruction estimated at $5,400. Rain caused considerable flooding of property valued at about $300. High winds blew down signs, etc. valued at about $300. Major portion of damage limited to western half of city. Storm moved southeastward.
Elfrida (area), Ariz. **	16 **	Afternoon	†3	6-7				10,000	Rain and hail	Cotton and chili crops levelled. Major damage by hail. Area affected reached from Elfrida to McNeal
Dwight (near), Ill.	16	10:15 p.m.	33	1	0	0	6,000	0	Tornado	Storm moved northeastward. House deroofed, windmill downed, two barns damaged, and several large trees downed.
Aledo (near), Ill.	17	4:30 a.m.					5,000		Electrical	Barn destroyed by lightning.
Bozeman, Mont.	17	3:30 p.m.	†1	2				2,000	Hail	Damage to truck gardens in and near Bozeman.
Russelville and vicinity, Ind.	17	4:45 p.m.	†2	5			7,500		Wind	Auto and several buildings damaged. Storm moved northeastward.
Patagonia, Ariz.	17	Afternoon					900		Flash floods	Thunderstorms in surrounding mountains caused flash flooding in Patagonia, which caught three autos trying to cross flooded areas.
Plymouth (rural area south and east), Ind.	17	6 p.m.	†1	3			50,000		Wind	Two barns destroyed; orchards damaged; two small airplanes damaged; poultry killed.
Plains, Yoakum County, Tex.	17	6 p.m.					500	500	Hail and electrical	Lightning killed one horse and two cows. Cotton damaged by hail
Anderson, Ind.	17	6:45 - 7:15 p.m.	50				2,000		Wind	Three garages demolished. Trees downed. Storm moved eastward.
Wagon Mound, N. Mex.	17	P.m.	880						Hail	Cut down new cane growth, stunting it.
Scottsville, Va.	17	P.m.					12,000		Electrical	Lightning struck warehouse, which burned down.
Goodwell, Texas County, Okla.	17-18	6:30-10:30 p.m., 17th; 5:30-6:30 p.m., 18th	†10	5				10,000	Hail	100 percent hail damage to grain sorghums and garden truck in path. Stones 3/4 inch in diameter.
Creek County (3 to 5 miles northwest of Bristow), Okla.	18	2:10 a.m.					3,000		Electrical	One large barn burned. Interior of one farm home blown wrecked by bolt.
Keith County (along North Platte River and southeastern portion), Nebr.	18	3:15 and 8 p.m.	†1-3	35				50,000	Hail	Damage to wheat, corn, hay, oats and barley.
Worcester County and Middlesex County (western portion), Mass.	18	Afternoon				1	10,800		Electrical	Lightning set several fires in Newton and Watertown burned one man in Clinton; other minor local damag

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Grafton County, N.H.	18	Afternoon					$30,000		Electrical	Lightning set fire to 14-family apartment house in Littleton, N.H.
Vance County, N.C.	18	4 p.m.					2,000	$60,000	Hail	Damage includes loss from storm of 15th in same county. Area of damage 9 square miles.
Allen County, Kans.	18	4:30 p.m.			0	0			Tornado	Small tornado destroyed barn and uprooted several yards of hedge on farm 10 miles southwest of Humboldt. Twister preceded by heavy rain which lightened as it passed, then followed by hard downpour.
Box Butte County (northwest of Alliance), Nebr.	18	4:40 p.m.	†1-3	15				25,000	Hail	Wheat, beans, and potatoes damaged.
Tampa, Fla.	18				1	1			Electrical	Boy killed by lightning. Playmate treated at hospital under oxygen tent and released in "fair" condition. It was not raining at time of tragedy. Lightning struck a pine tree about 75 feet from boys.
Fountain and Montgomery Counties (near Newtown and Wingate), Ind.	19	1:30 p.m.	200	5-7	0	0	40,000	10,000	Tornado	Outbuildings destroyed. Farm houses damaged. Fields of corn flattened. Cow, sheep, and pigs killed. Trees downed. Windows blown out. Storm moved northeastward.
Decatur, Ill.	19	Early afternoon					1,500		Wind	House and car damaged by falling trees. Several power lines downed.
Martinsville, Ind.	19	3:30 p.m.					2,000		Electrical	Large barn destroyed.
Chesnee, S.C.	19	Afternoon			1				do	Woman killed by lightning.
Van Wert County, Ohio	19	4:30 p.m.	Several hundred	3	0	0	0	0	Tornado	Storm moved northeastward. Church destroyed 3 1/2 miles southeast of Van Wert. Small buildings on several farms blown over, and barns unroofed. Livestock killed. Considerable acreage of corn flattened.
Lima, Ohio	19	4:50 p.m.	300	10	0	30	1,500,000	0	do	Storm moved northeastward. Three homes demolished, and hundreds of others damaged. Drive-in theater demolished, and three industrial plants damaged.
Fort Wayne, Ind.	19	5:45-6 p.m.		3	0	0	0	0	do	Storm moved northeastward. Damage to frame buildings, trees, windows, etc. Funnel apparently did not reach ground with much intensity.
Racine, Wis.	19	About 6 p.m.					3,500		Easterly gales	Strong easterly winds at Racine caused damage to five small pleasure boats. Some swamped and some driven ashore.
Jefferson County, Ky.	19	Evening				1	7,000		Electrical and wind	Injury caused by lightning. Utility lines and trees broken. Fire ignited by lightning damaged farm buildings.
Winchester, Ky.	19				1				Electrical and rain	Fatality resulted from electrocution, caused by "live" wire falling on victim.
Versailles (5 miles east), Mo.	19				0	0	Light	0	Unconfirmed tornado	Storm, described as "small twister" by substation observer, occurred 5 miles east of Versailles. Roofs of two barns blown off and one sheep killed.
Carpenter, Wyo.	20	2 p.m.	†4	20			Light	Light	Hail	Principal damage to growing crops and gardens.
Vega, Oldham County, Tex.	20	8 p.m.	†15	25				5,000	Wind and hail	Crops injured by hail in strip 2 miles wide by 12 miles long. Damage by hail $3,000; wind, $2,000.
Henrico County, Va.	20	P.m.					500		Electrical	Home damaged by lightning.
Jackson, Roane, Wirt, and Doddridge Counties, W.Va.	20								Rain	Rains caused flash floods in small streams, resulting in damage to crops in low-lying areas and temporary closures of two major highways, one of which closure caused by rock slide; one restaurant, one church, and several other buildings damaged by flooding; one small bridge washed away.
Harrisburg, Pa.	21	Afternoon							Whirlwind	A whirling wind (dust-devil type) that swept suddenly eastward across Susquehanna River, snapped cables holding a small boathouse, whirled it around, and sent it crashing into ferry. Canoe crushed between two flatboats. Three canoes, upside-down on another flatboat, were flipped into air with two of them landing in river. Houseboat unroofed.
Greene County, N.C.	21	3 p.m.					3,000	19,950	Hail	Area of damage 1 square mile.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Niobrara County (northern portion), Wyo.	21	4 p.m.	†3	8			Light	$2,000	Hail	Twenty sections of grass and 20 acres of oats destroyed.
Cumberland County, N.C.	21	5 p.m.							do	Damage included with storm of 24th in same county.
Martin County, N. C.	21	6 p.m.						43,000	do	Damage includes loss from storm of 14th in same county. Area of damage 6 square miles.
Lake City and vicinity, S.C.	21	Late afternoon and evening					$3,000	4,000	Hail and wind	Severe thunderstorms caused damage from wind and hail to crops and property, for which more than 60 insurance claims submitted.
Laramie County (eastern portion), Wyo.	21	7:30 p.m.	†4	20				40,000	Hail	Very little damage to livestock or buildings. Crops completely destroyed in large area.
Morrill County (North of Bayard), Nebr.	21	8 p.m.	†2	10-12					do	Beans, potatoes, small grain, and corn damaged. Some beans a total loss, second cutting of alfalfa badly damaged.
Goldsboro, Wayne County, N.C.	21	P.m.			1			Heavy	Wind	Wind dislodged brace from shelter, which fell and broke boy's neck. A few witnesses reported storm looked like a tornado.
Sampson County, N.C.	21				1				Electrical	Lightning struck woman standing in doorway of her home.
Roanoke, Ala.	21				1	1			Electrical	Boy killed and another injured slightly while playi under small tent. Thunderstorm very small, and bo described as "about the only one that flashed".
Talladega, Ala.	21						5,100		Electrical and wind	Fire started by lightning destroyed house and damag barn. A few trees uprooted by wind, with wind dam accounting for about $100 of total loss.
Wallowa and Union Counties, Ore.	22	1-3 a.m.						*5,000	Electrical and rain	Thunderstorm accompanied by moderate to heavy showe occurred over scattered but fairly large areas of Wallowa and Union Counties. Damage from lightning buildings and livestock plus damage to crops by ra not in excess of $5,000. One cow and one horse ki in Wallowa area. Forest fires set by lightning; a imately 30 acres burnt over, but largely in land p viously burnt and losses not great.
Hesperus, Colo.	22	2-3 p.m.	†10	10				1,500	Hail	Stones 3/8 inch in diameter. Damage mostly to stand ing grains.
Sioux County (10 miles west-southwest of Harrison), Nebr.	22	2-3 p.m.	†3	25			1,500	4,000	do	Damage to hay, oats, roofs and windows.
Hennepin County, (western portion), Minn.	22	5 p.m.	†2	4				15,000	do	Light to heavy hail, that accompanied a severe thunderstorm, caused considerable damage to growin crops.
Madison County (near Norfolk), Nebr.	22	6 p.m.	†2	6				10,000	do	Corn and small grain damaged.
Dodge County, Nebr.	22	7 p.m.	†1	24				153,000	Hail, electrical, and rain	Moved eastward. Losses to corn, small grain, and soybeans. Some livestock lost through lightning and drowning.
Stanton County (east of Norfolk), Nebr.	22	9 p.m.	†4	8				50,000	Hail	Corn, wheat, and oat losses.
Merrick County, Nebr.	22	10:30 p.m.	†1	5				15,000	do	Standing oats in path of storm a complete loss, also wheat shattered.
Williams (vicinity of), Minn.	22	P.m.					2,500		Thunder-squalls	A large barn demolished, and another barn unroofed. Many trees uprooted.
Weakley and Obion Counties, Tenn.	23	Early morning					1,000	50,000	Rain, wind, and flash floods	Most damage in Weakley County, especially in Dresde area. Basements flooded by flash floods. Crop da age by wind, beating rain, and soil erosion.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Florence, Colo.	23	1-1:15 p.m.	†3	6				$1,500	Hail	Stones 1/4 to 3/4 inch in diameter. Damage limited to garden truck and row crops.
Nunn (8 miles northwest), Colo.	23	2-2:15 p.m.	†5	12				300,000	do	Heavy losses to all crops in storm area; 5 inches of hail on ground after storm.
Box Butte County (southwest of Alliance), Nebr.	23	4 p.m.	†2-4	12				20,000	do	Wheat, beans, potatoes damaged.
Two Buttes, Colo.	23	5 p.m.	†1	2			400	1,500	do	Stones from 1/2 to 1 inch in diameter. Damage mostly to gardens and roofs. Little damage to grains and row crops.
Sargent, Colo.	23		†4	6				6,000	do	Damage mostly to standing grain.
Sioux County (west of Harrison), Nebr.	24	3 p.m.	†3	10					do	Hay and some grain damaged. All buildings on one ranch need re-roofing.
Hayes County (from Hayes Center southeastward) to Hitchcock County, Nebr.	24	3-4 p.m.	†6-8	30				90,000	do	Trees stripped, including bark. Wheat and corn damaged.
Titusville, Pa.	24	3:40-3:55 p.m.			0	0			Tornado, hail, and electrical	Black funnel twirling down Oil Creek out of west seemed to split, one part heading north and the other continuing on its original course. Major damage occurred over a 3-block area. Noise of storm drowned out crashing of a big tree a few yards away. Most damage from fallen trees which put about 300 telephone circuits out of service and disrupted power service for more than 4 hours. Roof and cornice of one building damaged to extent of $1200. At least two houses struck by lightning, and four minor fires set off by crossed power lines. Twelve head of cattle killed by lightning, resulting in a $3500 loss. Two automobiles damaged by falling trees.
Decatur County, Kans.	24	4 p.m.	†2	16			40,000	35,000	Hail and rain	Most damage occurred in northern part of county. Some stones 5 to 6 inches in diameter. Damage rather spotted. Windows broken, roofs destroyed, and sides of houses and automobiles dented. Some sheep killed. Heavy rain accompanied hail, and many chickens drowned. Crops pounded into ground. Several pigs drowned by flash flooding. Storm from northwest.
Rawlins County, Kans.	24	4-5 p.m.	†2 1/2	6				10,000	Hail	Northeastern corner of county most affected. Hail size of walnuts. Storm moved southwestward.
Ford County, Kans.	24	4-6 p.m.					100,000	30,000	Hail and wind	Storm moved southeastward across Ford County, with torrential rains in some localities, accompanied by hail and high wind in parts of Dodge City. Gardens ruined by hail, trees uprooted, and nursery stock damaged southwest of Dodge City. Many garages and other buildings wrecked.
Pitt County, N.C.	24	4:30 p.m.					2,400	4,000	Hail	Area of damage 4 square miles.
Sheridan County, Kans.	24	4:30 p.m.	†5	20				250,000	do	Storm originated northwest of Hoxie, moved southeastward. Hailstones mostly size of marbles.
Gove County, Kans.	24	6:30-10:30 p.m.	†20						Rain and hail	About 8 inches of rain fell just east of Quinter. Some hail up to 1 inch in diameter, but most damage resulted from flooding.
Keith County (Keystone and south of Paxton) and Arthur County (southern portion), Nebr.	24		†2	20				70,000	Hail	Wheat, small grains, hay, and corn damaged.
Cumberland County, N.C.	24							1,125	do	Damage includes loss from storm of 21st in same county. Area of damage 1 square mile.
Wheatland and vicinity, Wyo.	25	3 p.m.	†1	4				40,000	Hail and wind	Damage confined to 15 sections of irrigated crops.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Columbia, S.C.	25	4 p.m.			1		$3,000		Electrical and wind	Wind and lightning interrupted telephone and power services; power lines and transformers damaged; trees blown down. Man killed by lightning at Dixiana, about 6 miles southwest of Columbia.
Rush, Colo.	25	4-6 p.m.	†10	10			Slight	$50,000	Hail and wind	Hailstones varying sizes. Storm accompanied by high wind. Severe damage to wheat, beans, and barley.
Pueblo, Colo.	25	5:45-6:30 p.m.	†4	10			601,000	50,000	Hail and rain	Storm moved through west portion of city from north to south. Hailstones 3/4 to 1 1/4 inches in diameter Damage mostly to roofs and windows by hail, and flooding by heavy rain.
Seymour (near), Wisc.	25	Afternoon	†2	30				100,000	Hail	Hailstones damaged crops in a 2 mile-wide strip through parts of Outagamie, Brown, and Shawano Counties. About 2,000 acres of land struck by hailston Principal crops damaged were oats and corn.
Newport News, Va.	26	2 p.m.	†1	2			22,000		Wind	Felled trees and power poles; ripped off parts of buildings; destroyed C&O coal shed.
Rye, Colo.	26	4 p.m.	2500	15				2,000	Hail	Considerable damage to wheat.
Winterville, Pitt County, N.C.	26	4:30 p.m.			0	0			Tornado	Destroyed two barns filled with tobacco. Roof removed from one home. Several trees broken off.
Smyth County, Va.	26	5 p.m.					20,000		Rain	Wooden highway bridge in Rich Valley washed away. Much damage to secondary roads; embankments loosene One manufaturing plant in Atkins had 5 inches of water on floor, and four houses flooded.
Bertie County, N.C.	26	5 p.m.						750	Hail	
Springfield, Colo.	26	6-7:30 p.m.	†2	5				Light	do	Hailstones 3/8 to 1/2 inch in diameter.
Kearny County, Kans.	26	6:30 p.m.	†4	25				420,000	do	Path of destruction extended from north to south across county just west of Lakin. Most stones near 3/4 inch in diameter, but some larger than baseballs
Haskell County, Kans.	26	8 p.m.	†4	20				100,000	do	Hail size of marbles fell over western part of count Storm seemed to come from east.
Person County, N.C.	26	9 p.m.			1				Electrical	Lightning struck and wrecked one home.
Davidson County, N.C.	26				1				do	Boy struck by lightning.
Columbia, S.C.	27	2-3 p.m.					500		Thunderstorm	Mostly damage from severe flooding in southern and eastern sections of City.
Kalispell, Mont.	27	3 p.m.	†2	15			20,000		Electrical and wind	Wind, with gusts of 63 m.p.h. damaged roofs and bil boards, and broke windows, trees, telephone and power lines. Lightning damaged telephone installa
Sterling, Colo.	27	4 p.m.	†4	4				3,000	Hail	Severe damage to crops north of Sterling.
Marion, S.C.	27	Afternoon					5,000		Thunderstorms and wind	Extensive damage to houses and telephone lines.
Hartsville, S.C.	27	Afternoon					10,000		Electrical	School near Hartsville destroyed by fire from light
Concord, Cabarrus County, N.C.	27	5:20 p.m.			0	0	3,000	0	Tornado	Evidently left a short path of destruction. Damage confined principally to communication and power li store fronts, and automobiles.
Robeson County, N.C.	27						750	4,200	Hail	Area of damage 2 square miles.
Bedford County, Pa.	28	1:30-2 p.m.						5,000	do	Three areas, each about a mile square, near Artemas suffered damage to corn, oats, and gardens. Hailstones up to 1 inch in size. Storm moved southeas ward. Destruction from hail spotty.
Adams County (south-central portion), Ohio	28	4:30 p.m.	†1	5					do	Practically all tobacco and most corn a total loss.
Sterling, Colo.	28	5 p.m.	†2-3	6-8				1,000	do	Moderate damage to crops south of Sterling.
Carroll, Howard, and Prince Georges Counties, Md.	28	5-7 p.m.	†15	40					Hail, wind, and thunderstorm	Little information except that hail and rain very heavy in Laurel and Savage sections. Heavy rains extended north-northwestward to Westminster.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Rockingham County, N.C.	28	6 p.m.						$13,000	Hail and wind	Area of damage 4 square miles. Strong winds also uprooted trees, ripped out communication lines, and unroofed several tobacco barns.
Davidson County, N.C.	28	7 p.m.					$300	10,700	Hail	Area of damage 3/4 square mile.
Chatham County, N.C.	28	8 p.m.					500	15,000	do	Area of damage 2 square miles.
** Platte and Goshen Counties (southern portions), Wyo.	** 29	1 p.m.	†3	20				10,000	Hail and wind	Damage confined to growing crops.
Mt. Jackson (near), Va.	29	2-3 p.m.	†1	3				50,000	do	Apple orchard seriously damaged, especially where fruit had not been thinned. Fields of corn shredded. Ground turned white by hail.
Antelope County (west and north of Neligh), Nebr.	29		†4	2				5,000	Hail	Losses to standing small grain.
McPherson County, Kans.	30	1:05 a.m.	70	1/4			5,000		Wind	Most damage to an airplane hangar and three light planes at an airport 2 miles north of McPherson. A few trees and awnings in McPherson broken or blown down.
Tombstone, Ariz.	30	4 a.m.-5:45 a.m.	†5				800		Electrical and rain	Lightning struck transformer, also trailer house which caught fire. Lightning damage $280; rain damage $520.
Vail-Benson area, Ariz.	30	10 a.m.-2 p.m.					20,000		Flash floods	Highway bridge between Vail and Benson badly damaged by flash flood waters, caused by heavy thunderstorms in surrounding mountains.
Tucson, Ariz.	30	10 a.m.-2 p.m.	†20		1		10,000		Rain	Several heavy thundershowers moved eastward over Tucson metropolitan area. Rillito Creek spilled over its banks in several places when flash flood waters from storms swept down. Severe flooding occurred in many sections of city. Over 2.00 inches of rain fell in one hour from 10:10 to 11:10 a.m. at University of Arizona. Sewers washed badly. Traffic blocked by high water with some damage to small bridges. Erosion damage to streets and lawns. Man drowned early on morning of 31st at Indian School Road Bridge over Santa Cruz River.
Burlington, Colo.	30	6-7 p.m.	†2	9				6,000	Hail	Severe damage to 80 percent of crops, mostly corn.
East Lansing, Mich.	31	Evening					200,000		Rain, hail, electrical and wind	Numerous streets and sewers flooded. Lightning struck building on Michigan State College Campus valued at about $140,000 and burned to ground. Loss from hail and wind negligible.
Old DuQuoin (near), Ill.	31	Night			1				Electrical	Woman killed by lightning.
East Dubuque, Ill.	31	Night			3				Rain	Flash flood overturned automobile, drowning three persons.
Garden County, Nebr.	Latter part of month							225,000	Hail	Reported about a dozen damaging hailstorms; "nearly every business house in Oshkosh needed a new roof." Wheat and corn damaged.

See footnotes at end of table.

SEVERE STORMS

(RECEIVED TOO LATE TO BE PLACED IN CHRONOLOGICAL ORDER)

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Philadelphia, Pa.	10				3	9			Rains	At Weather Bureau Office 2.95 inches of rain fell in 14 hours ending about 11 a.m. Flooded streets hampered or blocked traffic in many parts of city. Three persons killed and nine injured in accidents on rain-soaked roads.
Lodge Grass (near), Mont.	11							$100,000	Hail	
Philadelphia, Pa.	16	7-8 p.m.							Electrical and rain	Short, but heavy rains flooded underpasses and lower streets, marooning autos and streetcars in 2 to 3 feet of water. Basements and some first floors of stores flooded. Pressure of sudden heavy rain burst water mains; sewers backed up. Several manhole covers washed down flooded streets as sewers overflowed in Germantown area. Some power lines downed, a big tree uprooted, and one television aerial struck by lightning.
Enid, Garfield County, Okla.	28						$300,000		Hail and rain	Hail damaged 3,000 roofs. Occurred in connection with heavy rain that caused one of most severe floods in history of Enid. Damage from flood wate about $990,000, in addition to the $300,000 damage by hail and heavy rain.

† Miles instead of yards.
* Crop damage included with other property damage.
** For additional storms this date see last page of "Severe Storms" tabulation.

PRELIMINARY TOTALS BY STORM TYPES FOR JULY 1950

Type	Deaths	Injuries	Damage
Tornado		37	$ 3,299,375
Wind	1		1,492,505
Hail		1	10,927,325
Electrical	16	20	335,080
Rain	13	5	6,720,390
Total	30	63	$22,774,675

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JULY 1950

Moderate to locally severe flooding occurred along the Kansas and Osage Rivers and tributaries during the month. The flooding in the Big Blue Basin was the severest of record from York, Nebr., to below Crete, Nebr. A severe flash flood occurred in the Upper Mississippi Basin along the Pecatonica River at Darlington, Wis. It was the greatest flood of record for that area.

ATLANTIC SLOPE DRAINAGE.--The flooding along the Neuse River in eastern North Carolina during the second decade of the month was due to frequent showers during the first 15 days of July. The rainfall on the 9th and 10th averaged about 1.5 inches in the headwaters and 3 inches in the lower portion. Minor flooding occurred along the Cape Fear River at Elizabethtown, N.C., on the 15th from the locally heavy showers in the upper portion between the 10th and 13th.

EAST GULF OF MEXICO DRAINAGE.--The Pearl River exceeded flood stage by a few inches early in August due to the frequent heavy rains beginning on the 22d. No damage resulted as the overflow was confined to low swamp areas. Moderate rises occurred on the Leaf and Chickasawhay Rivers but no flooding resulted.

UPPER MISSISSIPPI BASIN.--Excessive rains over the week end of the 15th and 16th caused flash flooding along several of the smaller tributaries of the upper Mississippi River in Wisconsin, Illinois, Iowa and Minnesota. Some of the rivers in the 4-state area affected were the lower Kickapoo, Pecatonica, upper Iowa, Root and Rock Rivers. The flooding along the Pecatonica at Darlington, Wis., was especially severe. It was the greatest flood of record for that area. Normally, Darlington is not affected by flooding from the Pecatonica River except in the winter or early spring due to ice gorges. The rainfall in the northeastern portion of Grant County in Wisconsin averaged around 6 inches in less than 24 hours with the greater portion of it occurring in 4 hours. The 24-hour rainfall over the other portions averaged in excess of 3 inches. The greatest amount recorded was 8.26 inches at Saratoga, Iowa. Considerable damage resulted to standing corn and grain. Numerous bridges were washed out, especially in southwestern Wisconsin. One man was drowned. Three more lives were lost in Dubuque, Iowa, when the car in which they were riding overturned and was washed into a storm sewer as the driver attempted to cross a flooded street that resulted from excessive rains on the 31st.

Flooding along the Illinois River at Havana, Ill., was due to rainfall averaging in excess of 3 inches over the upper and middle reaches between the 16th and 18th.

MISSOURI BASIN.--A minor flash flood occurred along the James River on the 12th in the reach from just below Merrill to about 2 miles northeast of Sioux City, Iowa, due to heavy thundershowers on the evening of 11-12th. The rainfall during the night totalled 1.45 inches at Le Mars, Iowa, 2.68 inches at Merrill, Iowa, and 2.81 inches at James, Iowa. An unofficial amount of 3.5 inches was reported in the vicinity of Hinton, Iowa. Some damage resulted to corn fields in the lowlands but the major damage was due to erosion on the hill land adjacent to the bottom land. Damages were also sustained by the Great Northern Railroad when a section of the track was washed out and a few freight cars derailed.

Some flooding occurred on the Elkhorn River at West Point, Nebr., between the 19th and 22d due to frequent showers. Some damage resulted to growing crops.

Moderate to locally severe flooding occurred along the Kansas and Osage Rivers and tributaries during July. The first overflow was due to torrential rains during the night of the 8-9th that caused the worst flood of record in the Big Blue River Basin from the vicinity of York, Nebr., to below Crete, Nebr. At Crete, flood stage was exceeded by 13 feet and at Blue Rapids, Kans., by 10 feet. Additional rains later on during the month caused the Solomon River at Beloit, Kans., to exceed flood stage by over 8 feet. Five- to six-foot overflows developed on the lower portions of the Little Blue River, the South Fork of the Solomon and along the upper Kansas River at Manhattan. The flood stages on the Kansas River were the highest recorded at Manhattan since 1943 and at Topeka, Kans., since 1944. The greatest losses occurred in the Big Blue River Basin in York County, Nebr., where severe losses were sustained in the flash flood in the vicinity of York, Nebr.

Flooding on the Blue River at Kansas City, Mo., was due to heavy rain (1.67 inches) during the night of the 12-13th. This same storm caused some flooding along the main stem of the Missouri River at Waverly, Mo., where bank-full stage was exceeded by 1.8 feet. Heavy runoff occurred from this rain as the ground was well saturated from previous rains. Heavy rains occurred again from the 16th to the 19th causing additional overflow along streams in Kansas and Nebraska and at scattered points along the main stem of the Missouri River below Napoleon, Mo. The heaviest rainfall amounts occurred over northeastern Kansas where an average of nearly 3.5 inches fell. Rainfall during the month was heavy over Kansas, Nebraska and Missouri. At Lawrence, Kans., it was the wettest July in 82 years.

OHIO BASIN.--Minor flooding occurred on the West Fork of the White River at Anderson, Ind., on the 5th and 6th due to heavy rains during the first few days of the month. The rainfall during the period averaged 3.5 inches over the headwaters above Anderson. No damages resulted.

Some flooding occurred on First Creek at Knoxville, Tenn., on the 26th and on the South Chickamauga Creek at Chattanooga, Tenn., from the 26th to the 28th due to heavy local rains. No damage resulted.

ARKANSAS BASIN.--Excessive rains occurred over the Canadian River and tributaries in Oklahoma during July. The average rainfall for the state was around 9.25 inches, or approximately 333 percent of normal. It was the wettest July of record and exceeded the previous record of 6.05 inches in 1899 by over 3 inches. Several stations in Seminole and Pushmataha Counties reported over 18 inches for the month and several others over 12 inches. Flooding developed along the Deep Fork Creek at Dewar, Okla., on the 18th and along the North Canadian at Woodward, Okla., on the 19th and again on the 26th and approached bank-full along the South Canadian from Union City downstream to Purcell from the 20th to the 23d. The flood at Woodward was the most severe of record for July. The crest of 6.75 feet exceeded the previous record July stage of 5.6 feet in 1920 by 1.15 feet. Flood damages were light except for a limited area along the North Canadian near Woodward.

A flash rise occurred on the Big Arkansas River at Dodge City, Kans., due to heavy rains during the evening of the 26th. Unofficial reports of as much as 10 inches were reported west and southwest of the city. The river rose rapidly from a stage of 3.6 feet to 9.6 feet by 2 a.m.

on the 27th. It fell sharply and by 7 a.m. on the same morning it had fallen 4.2 feet to a stage of 5.4 feet. The crest moved downstream and by the end of the month the river was overflowing at Great Bend, Ark. The rainfall in that vicinity during the last 3 days of the month averaged 4.5 inches. Severe flooding occurred in the creeks at Great Bend.

Heavy showers in the afternoon and evening of the 25th caused flash floods in the vicinity of Florence, Beulah and Rye, Colo. The flow from creeks in this area caused some flooding along the Arkansas River below Nepesta, Colo. Considerable flooding occurred in the reach between Ralston, Okla., and Dardanelle, Ark., between the 18th and 31st due to heavy showers throughout the month. Severe damages resulted from the flooding.

ATCHAFALAYA BASIN.--A slight overflow occurred on the Atchafalaya River at Morgan City, La., on the 12th between the hours of 8 and 10 in the morning due to onshore winds and high tides. No damages resulted.

WEST GULF OF MEXICO DRAINAGE.--Some flooding occurred along the East Fork of the Trinity River near Rockwall, Tex., and along the main stem at Dallas, Tex., during the last few days of the month due to moderate to heavy showers on the 26th and 27th. This same storm caused minor flooding in the upper Sabine Basin at Mineola, Tex., on Aug. 4.

Heavy rains during the night of the 23d-24th on the west slope of the Sandia Mountains caused a flash flood on Embudo Arroyo which inundated approximately 250 acres of the residential section in the northern part of Albuquerque, N. Mex. Several homes were flooded with resulting losses to lawns and personal property. Several homes were reported unsafe for occupancy following the flash flood.

Heavy rains during the evening of the 12th caused flooding in the Hatch and Hot Springs, N. Mex., area. A few homes and farm lands were flooded. Two bridges south of Hot Springs on Highway 85 were washed out and communications with the city were out for a period of 17 hours, except for short wave radio. Part of the flood waters went into Caballo Reservoir and little damage was experienced south of the dam, except in the immediate rain area, though the Rio Grande did reach its highest stage since 1942. The Rio Grande exceeded flood stage slightly at Del Rio, Tex., on the 13th and 14th due to heavy rains of from 1 to 5 inches in the area on the 13th.

COLUMBIA BASIN.--The main stem of the Columbia River after cresting on June 26 at Vancouver, Wash., at a stage of 25.2 feet, rose again during the first few days of July to a second crest of 24.4 feet on the 4th. It receded steadily thereafter and on the 21st it was again within its banks, 64 days after going above flood stage on May 19. The Willamette River at Portland, Oreg., also rose slightly during the first few days of July due to backwater from the Columbia, cresting on the 4th at a stage of 24.0 feet, the highest July stage since 1882, and 0.8 foot lower than the first crest of 24.8 feet on June 26. It receded steadily thereafter and on the 16th, 50 days after going above flood stage on May 28, it was again within its banks. Flood losses were confined mostly to the closing of water front industrial plants, flooding of pasture lands and that due to erosion.

FLOOD STAGE DATA

(All dates in July unless otherwise specified)

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE	Ft.			Ft.	
use:					
Neuse, N.C.	14	11	12	15.3	12
Smithfield, N.C.	13	12	15	14.8	13
		17	17	13.2	17
Goldsboro, N.C.	14	16	20	15.7	19
Kinston, N.C.	14	18	22	14.2	20
pe Fear:					
Lock No.2, Elizabethtown, N.C.	20	15	15	20.2	15
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
ot: Hokah, Minn.	45	16	17	46.7	17
ckapoo: Steuben, Wis.	7	16	20	11.4	16
catonica: Freeport, Ill.	12	20	25	14.5	21-22
ck: Moline, Ill.	10	23	†	10.4	27-31
linois:					
Havana, Ill.	14	June 21	June 30	15.5	June 22
		21	21	14.1	21
Beardstown, Ill.	14	June 21	3	16.5	June 25
Missouri Basin					
oyd: James, Iowa	16	12	12	17.1	12
khorn: West Point, Nebr.	12	19	22	13.9	21
line:					
Wilson, Kans.	12	16	16	13.7	16
		17	17	17.0	17
		27	28	21.2	27
Tescott, Kans.	25	19	21	27.4	20
		31	31	25.9	31
uth Fork: Alton, Kans.	12	26	26	18.3	26
		27	27	14.0	27
rth Fork: Kirwin, Kans.	13	27	27	13.8	27
lomon:					
Beloit, Kans.	18	9	11	23.5	10-11
		16	21	26.1	18,20
		26	30	22.2	27
				24.8	30
Minneapolis, Kans.	26	10	10	28.4	10
		18	18	26.0	18
		20	20	26.2	20
Niles, Kans.	24	9	12	26.9	9
				25.0	11
		17	24	25.9	17-18
				27.3	19-20,21
oky Hill:					
Lindsborg, Kans.	21	19	19	21.8	19
Abilene, Kans.	22	19	24	25.4	21-22
Enterprise, Kans.	26	19	24	26.8	19
				27.9	20
ppa Creek: Stamford, Nebr.	14	28	30	16.6	29
airie Dog Creek: Norton, Kans.	17	12	12	17.5	12
		25	25	19.3	25
epublican:					
Cambridge, Nebr.	6	12	12	6.4	12
		25	25	6.0	25
		26	26	6.9	26
Orleans, Nebr.	9	27	27	9.3	27
Guide Rock, Nebr.	10	9	9	14.4	9
Hardy, Nebr.	11	[illegible]	10	13.7	10
		17	17	11.1	17
Scandia, Kans.	10	[illegible]	10	12.8	10
		17	17	10.2	17
Concordia, Kans.	10	10	10	11.2	10
		18	18	10.1	18
Clay Center, Kans.	15	[illegible]	12	19.4	11
		17	20	16.1	17
				18.7	19
		26	26	15.0	26
Wakefield, Kans.	11	11	12	11.6	11
		19	19	11.7	19
Junction City, Kans.	10	19	20	10.8	19
				10.9	20

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft.	
Missouri Basin (Cont'd.)					
Little Blue:					
Endicott, Nebr.	9	9	10	14.1	9
		11	14	13.6	12
		17	19	13.3	18
				10.9	19
Hanover, Kans.	14	9	11	18.2	10
		12	13	16.0	13
		17	20	15.5	17
				20.1	19
Big Blue:					
Crete, Nebr.	16	10	18	28.7	10
				20.1	17
Beatrice, Nebr.	16	12	14	20.0	12
				20.9	12
Barnston, Nebr.	18	12	14	23.3	13
Blue Rapids, Kans.	20	9	11	23.9	9
				23.8	10
		12	14	24.6	13
		17	20	27.6	17
				29.6	19
Randolph, Kans.	22	17	18	23.9	8
				25.3	9
		19	20	25.6	0
Delaware: Valley Falls, Kans.	22	17	18	24.9	18
		19	19	22.2	19
Wakarusa: Lawrence, Kans.	23	19	20	28.3	19
Stranger Creek: Tonganoxie, Kans.	23	19	22	25.7	21
Kansas:					
Ogden, Kans.	18	19	20	20.3	19
Manhattan, Kans.	17	10	13	19.6	11
		17	21	23.0	20
		26	26	18.1	26
Wamego, Kans.	16	19	21	19.0	20-21
Topeka, Kans.	21	18	18	22.0	18
		19	21	24.8	19
Lecompton, Kans.	17	13	13	17.7	13
		18	22	21.9	19
Lawrence, Kans.	18	18	21	22.0	20
Bonner Springs, Kans.	21	20	20	21.3	20
Blue: Kansas City, Mo.	18	12	13	20.0	12
Grand: Brunswick, Mo.	12	14	14	12.1	14
		19	23	14.7	20
Marais des Cygnes:					
Osawatomie, Kans.	28	13	14	30.5	14
La Cygne, Kans.	25	13	15	28.0	15
Trading Post, Kans.	24	16	16	24.0	16
Osage:					
Osceola, Mo.	22	19	21	24.2	19
Warsaw, Mo.	31	21	22	31.0	21-22
Lakeside (Bagnell Dam), Mo.	60	22	30	60.0	23
Missouri:					
Lexington, Mo.	22	18	22	24.0	19,21
Waverly, Mo.	18	13	15	19.8	14
		18	23	21.8	22
Boonville, Mo.	21	20	21	21.3	20
Hermann, Mo.	21	20	24	22.9	22
St. Charles, Mo.	25	20	25	27.1	23
Ohio Basin					
West Fork: Anderson, Ind.	10	5	6	10.3	5
First Creek: Knoxville, Tenn.	5	26	26	6.5	26
South Chickamauga Creek:					
Chickamauga, Tenn.	10	26	28	12.2	27
Arkansas Basin					
Cimarron: Perkins, Okla.	11	29	31	13.8	31
Verdigris:					
Independence, Kans.	30	18	20	37.2	19
Claremore, Okla.	38	21	23	40.1	23
Inola, Okla.	41.5	21	24	43.3	24

See footnotes at end of table.

FLOOD STAGE DATA

(All dates in July unless otherwise specified)

Table 5-Continued

River and station	Flood stage	Above flood stages -dates		Crest *	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	Ft			Ft.	
Arkansas Basin (Cont'd.)					
Cottonwood: Emporia, Kans.	20	10	11	23.5	11
		19	20	20.4	20
Neosho:					
Emporia, Kans.	22	20	20	21.4	20
Le Roy, Kans.	23	13	13	23.3	13
Iola, Kans.	15	13	13	15.9	13
Chanute, Kans.	20	14	14	20.5	14
		19	20	21.9	19
Parson, Kans.	24	19	22	25.2	20-21
Oswego, Kans.	17	18	23	23.0	20
Deep Fork: Dewar, Okla.	18	18	31	22.2	23
North Canadian: Woodward, Okla.	5	19	23	6.1	21
				6.6	23
		26	29	6.2	27
				6.8	28
Arkansas:					
Great Bend, Kans.	‡	31	†	----	--
Ralston, Okla.	16	18	18	16.4	18
Webbers Falls, Okla.	23	22	23	24.0	23
Fort Smith, Ark.	22	22	26	24.1	24
		30	30	22.2	30
Van Buren, Ark.	22	22	26	25.4	24
		30	31	23.3	30
Dardanelle, Ark.	22	23	26	23.8	24
		31	31	22.1	31
Atchafalaya Basin					
Atchafalaya: Morgan City, La.	6	12	12	16.2	12
WEST GULF OF MEXICO DRAINAGE					
East Fork: Rockwall, Tex.	10	28	31	13.4	29
Trinity: Dallas, Tex.	28	29	30	29.2	30
Rio Grande: Del Rio, Tex.	15	13	14	15.8	14
PACIFIC SLOPE DRAINAGE					
Willamette: Portland, Oreg.	18	May 28	16	24.8	June 26
Columbia:					
Boundary, Wash.	32	June 18	15	39.3	June 24
Vancouver, Wash.	15	May 19	21	25.2	June 26

* Provisional.
† Continued at end of month.
‡ Flood stage resulted from wind and tide effects.

RADIOSONDE DATA

Average monthly values

Table 20 — JULY 1950

Standard pressure surface (mb)	ALBANY, N. Y. (1005 MB)				ALBUQUERQUE, N. MEX. (838 MB)				ATLANTA, GA. (984 MB)				BIG SPRING, TEX (924MB.)				BISMARCK, N. DAK. (954 MB.)				BOISE, IDAHO (912 MB.)				BROWNSVILLE, TEX. (1013 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	86	18.9	78	31	1,620	24 0	44	31	300	23.0	83	31	784	26.2	59	31	505	20 4	65	31	868	26 8	32	31	6	27.6	79
1,000--	30	131	19.4	72	31	38			31	163			31	81			31	92			31	48			31	119	26.7	79
950----	30	577	18.8	64	31	511			31	613	22.7	76	31	539			31	544			31	511			31	577	23.8	77
900----	30	1,036	15.9	66	31	991			31	1,082	19.8	76	31	1,020	26 2	53	31	1,009	18.9	57	31	989	27.7	22	31	1,043	21.8	63
850----	30	1,519	12.7	66	31	1,496			31	1,573	16.5	77	31	1,522	22.9	58	31	1,496	15 1	61	31	1,491	23.9	21	31	1,538	19.6	53
800----	30	2,026	9.3	67	31	2,027	22 0	39	31	2,087	13.5	74	31	2,047	19 0	58	31	2,007	11.5	62	31	2,016	19.4	25	31	2,058	16.8	49
750----	30	2,563	6 0	63	31	2,592	18.0	42	31	2,632	10 3	69	31	2,600	14.8	61	31	2,553	7 8	58	31	2,571	14 5	31	31	2,605	13.6	46
700---	30	3,120	3 4	46	31	3,170	13.3	19	31	3,200	7.0	66	31	3,178	10.7	62	31	3,109	4.3	55	31	3 144	9 8	34	31	3,183	10.0	47
650----	29	3,720	0.3	43	31	3,791	8.3	58	31	3,812	3.3	67	31	3,796	6.7	61	31	3,714	0 1	52	31	3 759	5.2	35	29	3,798	6.1	45
600----	29	4,356	- 3 0		31	4,444	3 2	67	31	4,451	- 0.2	66	31	4,445	2 5	60	31	4,345	- 3.8	44	31	4,402	0.4	35	28	4,447	2.1	46
550----	29	5,045	- 6.8	37	31	5,150	- 1.9	74	31	5,148	- 3.7	57	30	5,144	- 1.9	55	30	5,031	- 8 0	41	31	5,092	- 4.8	39	27	5,147	2 2	43
500----	29	5,777	-11.8	35	31	5,897	- 6.7	72	31	5,891	- 7 9	48	30	5,896	- 6.1	47	30	5,760	-12.8	37	31	5,836	- 9 8	32	25	5,896	- 6 8	39
450----	29	6,584	-17.3		31	6,723	-11 4	63	31	6,710	-13.1	44	30	6,716	-10.9	42	30	6,564	-18.6	34	31	6,643	-15.5		22	6,715	-12.3	35
400----	29	7,447	-23.5		30	7,609	-17.0	51	31	7,590	-19.1	46	29	7,609	-17.0	34	30	7 123	25 1	34	31	7,518	-22.1		22	7,601	-18.1	30
350----	28	8,404	-30 8		30	8,597	-24 2	47	31	8,570	-25.9	43	29	8,597	-24 1	37	30	8, 79	-32.3	4	30	8,486	-30.1		22	8,585	-25.0	
300----	28	9,479	-39.0		30	9,702	-32.7	39	31	9,668	-34.1	44	29	9,702	-32.5		30	9,447	-40.4		28	9,567	-38 7		22	9,685	-33.6	
250----	28	10,704	-48.3		30	10,959	-42.8		31	10,919	-43.9		29	10,959	-42.8		29	10,673	-48.6		27	10,795	-47.2		22	10,938	-43 3	
200----	27	12,143	-56.8		30	12,427	-54.6		31	12,378	-55.6		27	12,426	-55.5		29	12,120	-53 1		27	12,248	-53.5		22	12,403	-54.8	
175----	26	12,986	-58 9		29	13,264	-61 0		31	13,217	-61.5		26	13,261	-62.1		28	12,981	-53 4		25	13,102	-55.1		19	13,241	-60.8	
150----	25	13,953	-59.6		25	14,212	-66.1		29	14,160	-65.3		23	14,199	-67.8		26	13,978	-54.3		23	14,081	-57.2		19	14,187	-65.6	
125----	22	15,095	-59.5		21	15,314	-69 0		28	15,265	-66.1		11	15,268	-70.3		24	15,144	-56.4		22	15,232	-59.1		14	15,298	-68 2	
100----	18	16,499	-58.9		14	16,651	-68.2		24	16,617	-65.2		8	16,610	-66.2		16	16,564	-57.3		18	16,629	-59.3		12	16,626	-68.8	
80-----	10	17,910	-58.3		10	18,004	-64.2		21	17,977	-63.2		8	17,970	-63.7		11	18,003	-57.0		10	18,039	-57.8		9	17,975	-67 1	
60-----									13	19,759	-59 4																	

Standard pressure surface (mb)	BUFFALO, N. Y. (991 MB)				CAMAGUEY, CUBA (1004 MB.)				CARIBOU, MAINE (991 MB.)				CHARLESTON, S. C. (1018 MB.)				CIUDAD VICTORIA, MEX (973 MB)				COLUMBIA, MO. (987MB)				DODGE CITY, KANS (925 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	221	18.9	78	19	122	24 1	92	31	191	16.0	84	31	13	24.0	90	30	335	30 9	47	31	239	22.1	75	31	792	22 3	75
1,000--	31	136			19	158	24.0	91	31	114			31	168	24.5	84	30	85			31	128			31	102		
950----	31	587	18.8	68	19	609	23.1	79	31	558	17 1	68	31	621	22 9	74	30	550	28.8	50	31	581	22.0	66	31	557		
900----	31	1,043	16.1	66	19	1,079	21.3	64	31	1,014	14.4	66	31	1,088	20.3	72	30	1,024	24.5	54	31	1,044	18.7	68	31	1,029	22.3	69
850----	31	1,527	12.8	69	19	1,573	18.6	62	31	1,495	11.0	68	31	1,581	17.4	69	30	1,522	20.3	58	31	1,532	15.0	71	31	1,525	19.5	67
800----	31	2,034	9.4	67	19	2,091	15.5	55	31	1,998	7.6	69	31	2,097	14.1	69	30	2,043	16.3	62	31	2,044	12.6	58	31	2,045	16.5	65
750----	31	2,576	6.3	61	19	2,634	12.2	45	31	2,534	4.5	60	31	2,645	10.8	68	30	2,593	12.4	65	31	2,592	10.1	51	31	2,596	13.2	63
700----	31	3,130	3.6	52	19	3,212	8 7	39	31	3,086	1.7	51	31	3,212	7.3	66	30	3,165	8.7	64	31	3,155	7.1	47	31	3,170	9.7	59
650----	30	3,736	1.0	41	17	3,818	4 3	49	31	3,687	- 0.9	42	31	3,825	3.7	64	30	3,782	5.0	60	31	3,765	3.9	40	31	3,785	5.7	57
600----	29	4,371	- 2.3		17	4,467	0.1	48	31	4,316	- 1 2	38	31	4,465	0.0	66	30	4,425	1 0	56	31	4,407	0.2	37	30	4,434	1.5	53
550----	29	5,058	- 6.6		17	5,162	- 3.8		31	5,000	- 8.5	37	31	5,161	- 3.9	66	30	5,119	- 2.8	49	30	5,101	- 4.0	36	30	5,127	- 3.1	50
500----	28	5,791	-11.5		16	5,905	- 7.9		31	5,729	-13.4	37	31	5,904	- 8 3	63	29	5,871	- 7.0	46	30	5,845	- 8.5	36	30	5,877	- 7.9	41
450----	27	6,595	-16.9		16	6,718	-13.1		31	6,532	-18.6	37	31	6,724	-13.2	57	29	6,689	-12.4	44	30	6,659	-13.7	36	29	6,692	-13.2	36
400----	27	7,465	-23.1	29	16	7,605	-19.4		31	7,392	-24.5	39	31	7,603	-19.0	53	29	7,577	-18.7	40	30	7,540	-19 9	35	29	7,576	-19.4	37
350----	25	8,431	-30.3		16	8,584	-26.5		31	8,351	-31.4	37	31	8,584	-25.7	48	27	8,562	-25.7		30	8,517	-26.9	35	28	8,557	-26.1	39
300----	25	9,509	-38.3		16	9,678	-35.0		31	9,424	-39.4		31	9,682	-34.2	47	26	9,681	-34.2		30	9,610	-35.1		28	9,654	-34.2	40
250----	23	10,737	-47.9		16	10,923	-44.8		31	10,649	-47.8		31	10,931	-44.4		26	10,911	-44.2		30	10,856	-44.1		28	10,904	-43.7	
200----	23	12,181	-55.3		16	12,382	-56.3		30	12,089	-53.7		31	12,383	-56.7		23	12,373	-56.2		30	12,320	-53.9		28	12,366	-54.5	
175----	20	13,032	-57.2		15	13,215	-61 6		28	12,947	-54.2		29	13,220	-62.7		23	13,210	-61.9		27	13,162	-58.5		27	13,206	-59.4	
150----	20	14,003	-58.1		12	14,155	-66.6		27	13,941	-53.8		29	14,156	-67.6		21	14,152	-66.8		22	14,123	-61.7		19	14,147	-63.5	
125----	17	15,159	-58.6		8	15,250	-70.7		23	15,107	-54.1		19	15,257	-66.9		20	15,244	-70 8		13	15,222	-62.0		13	15,252	-66.4	
100----	11	16,556	-57.8						18	16,538	-52.9		11	16,584	-65.9		13	16,562	-70.0		9	16,581	-61.3		8	16,610	-64.3	
80-----	6	17,978	-56.3						7	17,958	-51.4		7	17,914	-63.7		10	17 901	-67.5						6	17,986	-60.6	
60-----																	10	19,656	-61.8									
50-----																	8	20,775	-59.3									

Standard pressure surface (mb)	EL PASO, TEX (881 MB)				ELY, NEV. (811MB.)				GLASGOW, MONT (938 MB)				GRAND JUNCTION, COLO (851MB)				GREAT FALLS, MONT (887 MB.)				GREENSBORO, N. C. (987 MB)				HATTERAS, N. C. (1019 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	1,195	26.3	53	31	1,908	21.3	39	31	648	21 5	52	31	1,474	25.2	35	31	1,128	19.7	49	31	273	21.7	91	30	3	24 4	90
1,000--	31	54			31	40			31	85			31	28			31	81			31	162			30	166	23.9	85
950----	31	524			31	506			31	540			31	498			31	543			31	610	21.9	78	30	617	21.9	78
900----	31	1,006			31	989			31	1,006	20.4	44	31	982			31	1,016			31	1,079	19.4	74	30	1,084	19.4	73
850----	31	1,508	24.9	47	31	1,490			31	1,496	16.5	47	31	1,484			31	1,498	17.9	46	31	1,570	16.3	74	30	1,575	16 5	72
800----	31	2,037	21 0	50	31	2,020	21.8	35	31	2,009	12 3	52	31	2,017	23.4	31	31	2,013	14.1	49	31	2,084	13.1	71	30	2,089	13.6	70
750----	31	2,596	16.7	56	31	2,581	18.2	34	31	2,550	8 0	56	31	2,582	18 7	35	31	2,556	9.7	54	31	2,628	9 9	68	30	2,636	10 4	68
700----	31	3,176	12.2	61	31	3,162	13.4	38	31	3,111	3.9	55	31	3,162	13.7	41	31	3,123	5.0	60	31	3,195	6.4	69	30	3,203	7.1	66
650----	31	3,797	7.7	65	31	3,784	8.2	45	31	3,713	- 0.1	53	31	3,785	8.5	47	31	3,728	0 5	63	31	3,803	3.1	64	30	3,815	3.8	64
600----	31	4,448	2.9	67	31	4,435	2.7	54	31	4,346	- 4.2	47	31	4,436	3.1	53	31	4,361	- 3.9	59	31	4,445	0 3	54	30	4,456	0.2	63
550----	31	5,154	- 1.6	68	31	5,135	- 2.9	63	31	5,030	- 8.6	42	30	5,136	- 2 6	56	31	5,048	- 8 6	52	31	5,140	- 3.9	50	29	5,158	- 3 6	58
500----	29	5,902	- 6.0	65	31	5,881	- 8.7	69	31	5,759	-13.5	39	30	5,883	- 8.4	56	31	5,774	-13.4	41	31	5,884	- 8.3	47	29	5,898	- 7.8	59
450----	28	6,725	-10.9	57	31	6,695	-14.3	61	30	6,559	-19.1	37	30	6,699	-13.6	44	31	6,571	-19 4	38	31	6,699	-13.3	49	28	6,721	-12 8	52
400----	27	7,616	-16.7	45	31	7,573	-20.4	46	30	7,419	-25.4	37	30	7,579	-19.5	38	30	7,430	-26.2	38	31	7,583	-19.5	18	28	7,599	-18.6	49
350---	24	8,608	-23.5	39	31	8,548	-27.4	39	30	8,372	-32.8	37	29	8,557	-26.6	40	30	8,381	-33.6		30	8,560	-26 5	46	28	8,581	-25.5	48
300----	22	9,716	-31.6		31	9,638	-35 6		30	9,438	-41.2		29	9,651	-34.6	41	30	9,445	-41.3		29	9,655	-34.7	41	28	9,679	-33.8	42
250----	17	10,986	-41.6		31	10,881	-44.7		30	10,651	-50.2		28	10,899	-43 8		30	10,661	-49.3		29	10,900	-45.2		28	10,931	-44.0	
200----	13	12,458	-54.6		31	12,344	-53 6		29	12,092	-53.7		28	12,363	-53.7		29	12,103	-53.8		29	12,350	-57 5		28	12,388	-56 2	
175----	10	13,279	-61 7		31	13,193	-57.9		27	12,953	-52.8		27	13,212	-57.7		29	12,961	-53.3		28	13,181	-62.9		27	13,227	-62.4	
150----	9	14,220	-67.3		31	14,156	-61.3		24	13,946	-53 5		22	14,188	-61.6		27	13,955	-54.4		27	14,122	-66.4		26	14,168	-66.6	
125----	6	15,333	-72.4		27	15,279	-63.8		23	15,116	-55.3		21	15,305	-63 8		23	15,127	-56.6		23	15,227	-66.3		20	15,280	-65 6	
100----					26	16,642	-63.6		17	16,541	-56.1		16	16,677	-64.7		19	16,534	-56.7		17	16,591	-64 0		14	16,649	-63 8	
80-----					23	18,017	-60.8		15	17,962	-55.3		14	18,046	-61.5		11	17,941	-55.7		12	17,969	-61 1		10	18,042	-60.4	
60-----					9	19,825	-56.2		13	19,807	-53.6		7	19,871	-56.6													
50-----									10	20,980	-52.2																	

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (m.b.)	HAVANA, CUBA (1012 MB.)				HILO, T H (1015 MB.)				INTERNAT. FALLS, MINN. (971 MB.)				JOLIET, ILL. (995 MB.)				LAKE CHARLES, LA. (1015 MB.)				LANDER, WYO. (830 MB.)				LAS VEGAS, NEV. (932 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	49	24.8	88	31	9	25.0	75	31	361	16.1	83	31	179	19.6	77	31	5	25.3	88	31	1,696	19.3	46	31	660	34.2	21
1,000--	31	157	25.2	83	31	137	23.4	75	31	108			31	130			31	138	26.0	80	31	61			31	19		
950----	31	611	23 9	72	31	587	19.9	79	31	552	18.4	70	31	580	20.9	61	31	593	23.8	74	31	524			31	491		
900----	31	1,080	21.2	71	31	1,047	16.6	81	31	1,011	15.4	69	31	1,042	17.5	64	31	1,062	20.9	73	31	999			31	980	33.2	22
850----	31	1,573	18.2	64	31	1,532	13.5	82	31	1,494	12.0	72	31	1,528	13.8	67	31	1,556	18.0	67	31	1,493			31	1,491	28.8	25
800----	31	2,091	15.0	61	31	2,041	11.4	73	31	1,999	8 4	72	31	2,036	10.5	66	31	2,073	15.0	65	31	2,018	19.4	37	31	2,025	24.0	29
750----	31	2,638	11.7	57	31	2,592	10.4	43	31	2,540	5.1	71	31	2,582	7.5	56	31	2,621	11.9	62	31	2,572	14.8	41	31	2,586	18 9	35
700----	31	3,209	8.1	55	31	3,153	8.2	30	31	3,090	1.9	63	31	3,138	5.1	37	31	3,193	8.6	61	31	3,148	10.0	49	31	3,170	13.6	41
650----	31	3,822	4 0	56	31	3,770	5.8		31	3,691	- 1.3	56	31	3,744	1.8	32	31	3,809	5 1	57	31	3,763	5.3	54	31	3,793	8.3	46
600----	31	4,464	0.0	56	31	4,412	2.3		31	4,319	- 4.7	45	30	4,379	- 1.8		31	4,452	1.3	52	31	4,408	0.3	58	31	4,444	2.9	49
550----	31	5,164	- 3.5	54	31	5,113	- 1.1		31	5,000	- 8.9	42	30	5,068	- 6.0		31	5,153	- 2.7	46	31	5,104	- 4.8	54	31	5,144	- 2 0	43
500----	31	5,904	- 7.7	52	30	5,865	- 5.8		31	5,729	-13.7	38	30	5,806	-10.8		30	5,897	- 7.1	45	31	5,841	-10.1	44	30	5,893	- 7.2	41
450----	31	6,725	-12.7	49	30	6,684	-11.5		31	6,526	-19.4	37	29	6,611	-16.5		30	6,719	-12.4	47	29	6,653	-15.8	38	30	6,710	-12.6	
400----	31	7,606	-18.9	44	30	7,575	-18.0		30	7,389	-25.7	37	28	7,480	-22.7		30	7,601	-18.5	49	29	7,523	-22.1	36	30	7,596	-18.8	
350----	31	8,587	-26.2	38	30	8,557	-25.9		29	8,335	-33.2	36	28	8,446	-30.0		30	8,58	-25.4	47	29	8,491	-29.3		30	8,577	-25.7	
300----	31	9,682	-34.7	38	30	9,652	-35 2		27	9,408	-41.3		28	9,525	-37.8		30	9,682	-33.8	45	29	9,572	-38.0		30	9,676	-33.7	
250----	31	10,928	-44.9		30	10,895	-45.6		25	10,623	-49 5		28	10,757	-47.1		30	10,934	-43.8		28	10,802	-47.0		29	10,928	-43.5	
200----	30	12,381	-56.7		29	12,342	-57.5		24	12,073	-53.9		27	12,205	-55.1		30	12,393	-55.9		26	12,256	-54.3		29	12,393	-54.4	
175----	27	13,214	-62.3		27	13,175	-63.0		20	12,941	-53.9		26	13,047	-56.7		30	13,230	-61.8		25	13,106	-56.3		30	13,239	-59.5	
150----	25	14,153	-66.9		25	14,111	-68.4		14	13,926	-53.1		22	14,005	-58.1		30	14,170	-67.6		23	14,082	-58.4		30	14,192	-64.2	
125----	16	15,250	-68.5		20	15,198	-70.8		7	15,107	-53.5		17	15,151	-59.1		28	15,259	-69.6		18	15,223	-59.4		30	15,295	-67.9	
100----					11	16,505	-70.1		5	16,537	-54.8		15	16,548	-59.2		24	16,593	-68.6		13	16,619	-60.3		30	16,633	-68.0	
80-----					9	17,839	-67.4						10	17,956	-56.6		15	17,946	-65.5		7	18,017	-57 9		27	17,984	-64.5	
60-----					7	19,605	-60.9						5	19,781	-53.7		10	19,712	-62.1						18	19,765	-59.3	
50-----																									9	20,915	-57.1	
40-----																									5	22,336	-54.9	

Standard pressure surface (m.b.)	LITTLE ROCK, ARK (1006 MB)				MAZATLAN, MEXICO (1011 MB.)				MEDFORD, ORE. (967 MB.)				MERIDA, MEXICO (1012 MB.)				MIAMI, FLA. (1020 MB.)				NANTUCKET, MASS. (1015 MB.)				NASHVILLE, TENN. (996 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	79	24 4	79	30	14	28.4	76	31	401	27.7	28	31	27	26.9	74	31	4	26.6	79	31	14	17.8	95	31	177	23.4	80
1,000--	31	132	25.1	75	30	91	27.7	76	31	102			31	136	26.6	73	31	176	26.1	75	31	142	19.4	82	31	143		
950----	31	589	23.7	72	30	553	24.6	73	31	563	26.4	30	31	592	24.3	70	31	626	23.0	78	31	588	19.5	67	31	594	22.6	71
900----	31	1,055	20.6	74	30	1,019	22.3	69	31	1,031	22.6	34	31	1,061	21.2	69	31	1,097	20.1	75	31	1,049	16.9	65	31	1,063	19.4	72
850----	31	1,548	17.3	72	30	1,515	19 3	72	31	1,524	18.6	39	31	1,554	17.9	69	31	1,589	17.3	68	31	1,535	14.0	63	31	1,553	15.8	75
800----	31	2,063	14.3	67	30	2,035	16.2	70	31	2,041	14 9	41	31	2,071	14.7	65	31	2,105	14.2	63	31	2,044	11.0	61	31	2,066	12.7	74
750----	31	2,612	11.1	65	30	2,588	13.2	67	31	2,592	11.8	37	31	2,615	11.7	58	31	2,650	11.1	56	31	2,587	8.0	57	31	2,609	9.5	66
700----	31	3,179	7.8	61	30	3,160	9.8	66	31	3,158	8 7	27	31	3,189	8.3	56	31	3,220	7.6	54	31	3,147	5.5	46	31	3,177	6 5	59
650----	31	3,796	4.5	55	30	3,779	5.9	67	31	3,774	5.0	20	31	3,802	4.8	54	31	3,831	4 0	51	31	3,750	2.4	38	30	3,790	3.4	49
600----	30	4,437	0 9	50	28	4,424	1.6	71	30	4,413	0.6		31	4,446	0.9	55	30	4,473	0.2	48	31	4,392	- 1.4	38	30	4,428	- 0.3	40
550----	30	5,136	- 3.0	48	28	5,122	- 2.5	69	30	5,103	- 4 2		31	5,143	- 3.1	54	30	5,169	- 3.6	45	31	5,080	- 5.3	38	30	5,121	- 4 1	34
500----	30	5,881	- 7.1	49	28	5,872	- 6.8	66	29	5,847	- 9 4		30	5,891	- 7.3	52	30	5,913	- 7.7	38	31	5,822	-10.0	38	30	5,865	- 8.6	34
450----	30	6,701	-12.2	45	27	6,696	-11.6	61	29	6,659	-15.3		30	6,713	-12.3	48	30	6,728	-13.0	38	31	6,629	-15.2	39	30	6,679	-13.8	35
400----	30	7,586	-18.3	40	26	7,581	-17.3	55	29	7,532	-22.3		30	7,595	-18.4	47	30	7,613	-19.1	38	31	7,506	-21.2	40	30	7,560	-19.8	32
350----	29	8,569	-25 5	42	25	8,567	-24.4	47	29	8,499	-29 7		29	8,577	-25.7	45	30	8,593	-26.1	38	31	8,477	-28.2	43	30	8,537	-26.9	37
300----	28	9,668	-33 9		25	9,672	-32 3		29	9,579	-38 3		29	9,674	-34 2	42	30	9,690	-34 3	38	31	9,565	-36 3	44	30	9,630	-35.3	39
250----	27	10,919	-43.7		25	10,932	-42.4		29	10,807	-47 5		29	10,922	-44.7		30	10,939	-44.2		31	10,804	-46.2		29	10,874	-45.4	
200----	27	12,381	-55.2		23	12,397	-54.8		29	12,255	-54.7		29	12,373	-57.4		29	12,396	-56.1		31	12,250	-56.7		28	12,326	-56.7	
175----	27	13,221	-61.1		23	13,237	-61.6		27	13,099	-56.6		27	13,202	-64.2		27	13,235	-61.6		31	13,087	-60.4		28	13,163	-61 2	
150----	26	14,166	-65.9		22	14,178	-68.5		25	14,075	-58.2		24	14,129	-69.9		24	14,179	-65.9		29	14,044	-61.5		28	14,110	-64.5	
125----	24	15,269	-66 9		20	15,254	-73.5		22	15,230	-60.0		17	15,198	-72.1		19	15,284	-67.6		25	15,173	-61.0		25	15,217	-65.5	
100----	16	16,623	-65.4		13	16,562	-71.7		17	16,621	-60.4		10	16,510	-71.5		17	16,627	-68.3		19	16,561	-59.2		19	16,577	-64.2	
80-----	10	17,984	-61 4		8	17,907	-67.8		13	18,014	-58.8		5	17,834	-68.8		14	17,978	-65.9		14	17,964	-56.6		15	17,944	-60.9	
60-----					5	19,655	-64.1		12	19,828	-55.5														5	19,757	-58.7	
50-----									10	21,005	-53.4																	

Standard pressure surface (m.b.)	NEW ORLEANS, LA (1017 MB)				NORTH PLATTE, NEBR (918 MB.)				OAKLAND, CALIF. (1012 MB.)				OKLAHOMA CITY, OKLA. (969 MB.)				OMAHA, NEBR (979 MB)				PHOENIX, ARIZ. (969 MB)				PITTSBURGH, PA. (973 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	2	25.3	84	31	849	20.3	75	31	6	16.0	78	31	391	23.8	80	31	308	22.1	71	31	338	33.1	39	31	382	20.0	76
1,000--	31	152	25.8	81	31	96			31	106	15.1	77	31	112			31	123			31	52			31	144		
950----	31	606	23.6	76	31	551			31	555	21.6	45	31	569	23.8	73	31	572	21.4	64	31	518	33.0	35	31	594	20.4	69
900----	31	1,075	20.7	73	31	1,017	21.0	68	31	1,016	24.1	20	31	1,038	21.5	73	31	1,039	18.5	65	31	1,005	29 7	38	31	1,056	17.5	67
850----	31	1,568	17.7	70	31	1,510	18.2	65	31	1,514	22.1		31	1,532	18.5	74	31	1,527	15.2	67	31	1,511	25.5	42	31	1,542	14.2	69
800----	31	2,085	14.6	66	31	2,027	15.0	64	31	2,037	18 9		31	2,051	15.8	69	31	2,038	12.1	64	31	2,040	21.1	47	31	2,052	10.8	65
750----	31	2,636	11.5	62	31	2,578	11.7	61	31	2,593	15.2		31	2,604	12.9	64	31	2,585	9.5	52	31	2,599	16.4	53	31	2,596	8.1	52
700----	31	3,203	8.3	57	31	3,145	7.9	56	31	3,166	11.3	24	31	3,174	9.3	63	31	3,147	6.6	48	31	3,177	11.7	59	31	3,154	5.2	44
650----	31	3,817	4.8	57	31	3,761	3.9	53	31	3,787	7.3		30	3,791	5.6	61	31	3,755	3.1	46	31	3,796	7.2	59	31	3,761	2.2	37
600----	27	4,460	1.2	54	30	4,400	- 0.3	51	30	4,433	2.7		30	4,434	1.9	58	31	4,397	- 0.7	43	31	4,446	2.6	58	31	4,398	+ 1.3	
550----	26	5,158	- 2.8	54	30	5,093	- 4.7	47	30	5,133	- 2 0		30	5,135	- 2.2	52	31	5,088	- 4.9	35	31	5,145	- 2.0	56	31	5,087	+ 5 4	
500----	25	5,903	- 7.4	53	30	5,835	- 9.4	40	30	5,881	- 7 1		30	5,884	- 6.3	47	31	5,830	- 9.7	35	30	5,898	- 6.5	47	30	5,828	+10 3	30
450----	24	6,721	-12.3	47	30	6,648	-14.7	37	30	6,699	-13.0		29	6,707	-11.3	40	30	6,641	-15.0		30	6,720	-11.8	41	30	6,638	+15.3	
400----	23	7,607	-18.4	49	30	7,522	-20.9	36	30	7,581	-19.9		29	7,593	-17.6	35	29	7,516	-21.5		30	7,606	-18.0	36	30	7,512	+21 2	
350----	23	8,590	-24.9	50	30	8,496	-27.6		29	8,558	-27.6		27	8,576	-24.7		29	8,487	-28.6		30	8,590	-24.9		30	8,483	+28 5	
300----	22	9,692	-33.3	46	29	9,582	-36.0		29	9,647	-36.1		27	9,678	-33.1		27	9,571	-37.2		30	9,693	-32.9		30	9,568	-37.0	
250----	19	10,954	-43 2		26	10,822	-45.4		29	10,890	-44.8		27	10,934	-43.0		27	10,807	-46.3		28	10,949	-42.8		30	10,803	-46.6	
200----	18	12,414	-55.4		24	12,278	-54.5		29	12,353	-53.9		27	12,401	-54.7		27	12,259	-55.1		27	12,414	-54.9		27	12,247	-56.1	
175----	17	13,249	-61 6		22	13,130	-58.3		29	13,201	-58.2		25	13,242	-60.8		26	13,104	-58.2		23	13,257	-60.7		25	13,089	-58.7	
150----	17	14,192	-66.7		19	14,100	-61.6		27	14,166	-62.5		25	14,188	-65.9		25	14,066	-60.5		15	14,216	-66.3		23	14,058	-60.6	
125----	16	15,290	-67.6		16	15,228	-63.2		24	15,273	-65.5		23	15,284	-68.4		24	15,201	-61.9		7	15,303	-71.2		18	15,181	-60 0	
100----	13	16,630	-67.0		13	16,602	-62.6		14	16,615	-64.9		20	16,623	-67.1		19	16,575	-60.8						14	16,578	-59.2	
80-----	5	18,016	-63.6		10	17,983	-59.8		9	17,994	-61.6		13	17,990	-63.3		15	17,977	-58.6						10	17,982	-57.1	
60-----													8	19,773	-59.1										5	19,812	-54 0	
50-----																									5	20,986	-52.1	

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

JULY 1950

Standard pressure surface (mb.)	PORTLAND, MAINE. (1013 MB)				RAPID CITY, S. DAK (903MB)				ST. CLOUD, MINN (977 MB)				SAN ANTONIO, TEX. (986 MB)				SAN JUAN, P R (1016 MB.)				SANTA MARIA, CALIF (1005 MB)				S.STE. MARIE, MICH. (989 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
RFACE	31	20	17.5	86	31	980	18.5	63	31	317	19.1	70	31	240	28.4	63	31	19	26 2	86	31	71	15.3	86	31	221	13 3	88
000-	31	133	19.8	72	31	90			31	113			31	112			31	162	25.2	85	31	111	15.0	86	31	128		
0----	31	580	19.1	63	31	542			31	566	20.5	60	31	572	26 3	66	31	613	22.0	84	31	561	18 0	69	31	565	15.6	71
0----	31	1,039	16.2	62	31	1,010			31	1,023	17.2	61	31	1,045	23 1	71	31	1,082	19.0	83	31	1,015	23.4	31	31	1,022	13 6	66
0----	31	1,522	12.8	64	31	1,503	18.5	49	31	1,509	13.7	64	31	1,543	20.1	71	31	1,572	16.2	79	31	1,512	21 9	30	31	1,502	10.5	67
0----	31	2,029	9.5	60	31	2,020	14 8	52	31	2,017	10.0	65	31	2,064	16.7	71	31	2,088	14.4	62	31	2,035	18 8	33	31	2,004	7 2	71
0----	31	2,569	6.5	51	31	2,569	10.9	54	31	2,558	6.4	63	31	2,604	13.7	61	31	2,635	11.7	51	31	2,588	15 1	36	31	2,537	4.3	61
0----	31	3,125	3.7	45	31	3,134	6.8	58	31	3,114	3.2	54	31	3,191	10 5	52	31	3,206	8 3	46	31	3,164	11.2	36	31	3,091	1 4	54
0----	31	3,727	0.8	38	31	3,745	2 8	56	31	3,716	- 0.0	47	31	3,801	7.1	45	31	3,820	4.4	42	30	3,784	7.3	34	31	3,686	- 1 8	47
0----	30	4,359	- 2.9	34	31	4,382	- 1.7	48	31	4,349	- 3.6	43	31	4,459	3.1	38	31	4,463	0.8	39	30	4,432	2 9	32	31	4,317	- 5.5	40
0----	30	5,044	- 7.1	35	31	5,073	- 6.1	41	31	5,036	- 7.7	37	30	5,160	- 1 2	33	31	5,165	- 2.5	30	30	5,131	- 1.6		31	4,998	- 9 4	35
0----	30	5,780	-11.6	36	31	5,809	-10.7	35	31	5,766	-12.6	36	30	5,912	- 5 6	30	31	5,908	- 6.7		30	5,881	- 6 8		30	5,724	-14.3	34
0----	30	6,580	-16.8		31	6,615	-16.1	31	31	6,566	-18.1	34	30	6,733	-10.6		30	6,727	-12 1		30	6,699	-12.5		30	6,518	-19.8	36
0----	30	7,454	-22.9		31	7,488	-22.4	30	31	7,432	-24.1	34	30	7,629	-17.0		30	7,613	-18.3		30	7,584	-19 1		30	7,379	-26.0	35
0----	30	8,418	-30.1		31	8,454	-29.5	32	30	8,392	-31.2		29	8,617	-24.2		30	8,595	-26 1		30	8,564	-26.1		30	8,332	-32 9	37
0----	30	9,497	-38.2		30	9,534	-37.7		30	9,466	-39.0		29	9,722	-32 7		30	9,691	-34.8		30	9,662	-34 2		30	9,398	-40.8	
0----	28	10,730	-48.0		30	10,766	-47.0		30	10,694	-47.2		29	10,980	-42.4		29	10,938	-44 9		29	10,913	-43.3		29	10,616	-48 9	
0----	23	12,159	-56.9		30	12,218	-53 4		30	12,146	-53.7		28	12,450	-54.4		28	12,390	-56.9		29	12,384	-53.2		28	12,067	-53.5	
0----	22	13,002	-58.3		28	13,072	-54 5		29	13,006	-53.9		28	13,292	-60.7		28	13,224	-62 7		29	13,233	-58.3		28	12,924	-53 5	
0----	19	13,969	-59.3		27	14,048	-56.5		26	13,977	-54.3		25	14,233	-67.1		26	14,159	-67.4		29	14,191	-63 4		27	13,907	-53.3	
5----	18	15,108	-59.1		22	15,186	-57.3		23	15,137	-56.0		20	15,326	-69.7		18	15,243	-71.3		28	15,297	-67.0		23	15,090	-54.1	
0----	12	16,520	-57.2		14	16,585	-57 2		17	16,543	-56.2		15	16,643	-68.8		15	16,556	-73.2		24	16,649	-66 4		21	16,513	-54.4	
-----	9	17,934	-55 7		11	17,995	-56.7		12	17,984	-55.5		9	17,982	-64.6		12	17,865	-70.4		17	18,007	-62.4		9	17,923	-53.0	
-----	6	19,784	-52.6						6	19,836	-53.2		6	19,775	-58.5						5	19,822	-57 1					

Standard pressure surface (mb.)	SPOKANE, WASH (931 MB)				SWAN ISLAND, W I (1014 MB.)				TACUBAYA, MEXICO (775 MB.)				TAMPA, FLA. (1019 MB)				TATOOSH ISLAND, WASH (1016 MB)				TOLEDO, OHIO (994 MB)				WASHINGTON, D C (1015 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
RFACE	31	722	25.2	32	31	10	26.4	83	31	2,306	15.9	73	31	9	24.8	86	31	31	12 6	92	31	191	19.6	78	31	25	23.1	80
000--	31	84			31	136	25.8	81	31	73			31	173	25.1	78	31	162	12.0	91	31	136			31	155	23.2	74
0----	31	544			31	591	22.7	82	31	534			31	624	23.1	73	31	594	12.4	74	31	585	20.4	60	31	606	21 5	67
0----	31	1,014	23.1	31	31	1,057	19 9	77	31	1,010			31	1,095	20.2	71	31	1,045	11 9	58	31	1,047	17.0	62	31	1,069	18 3	69
0----	31	1,508	18.6	36	31	1,548	17.1	69	31	1,504			31	1,586	17 1	70	31	1,523	10.7	55	31	1,532	13.5	65	31	1,557	14.9	70
0----	31	2,023	14.0	41	31	2,064	14.5	60	31	2,032			31	2,101	14 1	66	31	2,026	8.5	51	31	2,040	10 1	65	31	2,068	11.6	68
0----	31	2,566	9 1	49	31	2,610	11.6	52	31	2,584	14.1	71	31	2,647	10.9	64	31	2,562	5.8	49	31	2,585	7.6	50	31	2,611	8 6	62
0----	31	3,131	4.6	51	30	3,182	8 4	48	31	3,160	10.1	74	31	3,217	7.4	61	31	3,118	2.7	48	30	3,140	4.6	44	31	3,174	5.9	51
0----	31	3,735	0.7	41	30	3,798	4.5	48	31	3,781	5.9	79	30	3,825	3.8	61	31	3,716	- 0.8	49	30	3,746	1.6	33	31	3,786	2 7	46
0----	31	4,368	- 3.4	42	30	4,439	1.0	40	31	4,425	1.5	82	30	4,470	0.1	63	31	4,350	- 4.6	44	29	4,382	- 2 0	31	31	4,421	- 0 9	44
0----	31	5,055	- 7.6	32	29	5,137	- 3.2	39	31	5,128	- 2.4	82	30	5,168	- 3.8	62	31	5,035	- 8.7	40	29	5,069	- 6.3		30	5,114	- 5.0	43
0----	31	5,786	-12.6	31	29	5,881	- 7.9	42	31	5,874	- 6.7	77	30	5,910	- 7 9	60	30	5,759	-13.7	39	29	5,807	-11 1	35	30	5,852	- 9.5	41
0----	31	6,587	-18.2	32	29	6,702	-13.0	39	31	6,699	-11.4	68	29	6,727	-13.1	58	30	6,555	-19 2	36	28	6,618	-16.1		30	6,667	-14 5	44
0----	31	7,451	-24.8	30	29	7,581	-18.8	33	31	7,586	17.3	67	29	7,610	-18.8	62	30	7,418	-25.5	34	28	7,491	-22.6		30	7,542	-20.7	44
0----	27	8,408	-32.6		29	8,562	-26.0		31	8,573	-24.1	59	29	8,591	-25.8	58	29	8,372	-32.8	34	28	8,456	-30.2		30	8,518	-27.3	44
0----	25	9,473	-40.7		29	9,659	-34.3		29	9,680	-32.5	55	29	9,689	-34 1	54	29	9,437	-41 3		28	9,531	-38 4		30	9,607	-35.4	44
0----	25	10,692	-49.1		28	10,907	-44.6		28	10,935	-43.3		29	10,939	-44.0		29	10,650	-50.0		28	10,762	-47.8		30	10,849	-45.3	
0----	24	12,135	-53.7		27	12,361	-56.6		28	12,396	-56.2		28	12,398	-56.0		29	12,087	-54 6		28	12,203	-55 8		30	12,300	-56 3	
5----	24	12,993	-53.4		27	13,195	-63.0		27	13,231	-62.6		28	13,235	-62 0		29	12,941	-53.9		27	13,046	-57.7		30	13,139	-60.5	
0----	22	13,979	-53.6		26	14,128	-68.7		25	14,163	-69.3		26	14,175	-66 0		26	13,930	-53.7		25	14,012	-59 4		30	14,091	-63.1	
5----	19	15,155	-55.6		23	15,207	-72.6		20	15,236	-73.6		23	15,273	-67.8		23	15,098	-54.5		19	15,174	-61.0		29	15,207	-62 9	
0----	16	16,572	-55.9		22	16,512	-73.9		15	16,533	-73.0		20	16,618	-67.0		19	16,515	-54.8		15	16,559	-60 6		27	16,581	-61.5	
-----	12	18,010	-55.0		20	17,825	-70.4		9	17,861	-69.1		15	17,963	-66.1		10	17,942	-54 1		10	17,957	-58 1		19	17,974	-59 0	
-----	6	19,851	-53 3		15	19,565	-63.5						7	19,737	-61.6										11	19,788	-55 4	
-----					8	20,682	-60.4																		7	20,963	-54 2	

Note: All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

Table 21

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Spe-d	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	153	3.0	31	229	2.1	30	220	2.0	31	352	1.4	31	263	1.7	31	312	5.1	31	147	8.2	31	229	4.6	30	241	2.0	28	199	2.8	31	224	2.1	31	212	0.8
500	--	---	----	--	---	----	30	217	2.1	--	---	----	--	---	----	--	---	----	31	149	10.5	31	248	5.2	30	240	3.8	28	206	5.0	31	222	2.1	--	---	----
1,000	31	162	4.0	--	---	----	30	228	3.1	--	---	----	31	273	2.8	31	313	4.9	31	158	8.9	31	260	5.0	30	249	4.9	28	223	4.8	31	224	2.4	--	---	----
1,500	31	178	3.8	--	---	----	30	250	3.3	31	318	1.4	31	281	3.3	31	318	3.6	27	161	7.1	28	261	4.8	30	258	5.9	26	237	5.1	31	242	2.7	31	221	.7
2,000	30	202	4.5	31	238	2.4	27	263	4.3	31	286	1.9	31	277	4.6	31	316	2.6	22	159	5.9	27	266	4.9	27	271	7.7	25	247	6.3	27	261	3.4	31	216	.9
2,500	29	217	4.3	31	246	1.8	26	266	4.9	31	275	3.5	26	282	5.4	31	292	3.6	19	154	3.4	26	269	6.1	21	278	7.6	22	244	7.0	22	260	4.1	31	263	.8
3,000	26	233	4.5	31	291	1.1	24	259	5.6	29	273	5.3	22	271	6.9	31	279	5.1	15	139	2.5	22	274	8.3	13	282	8.0	21	246	6.8	17	265	4.4	31	281	1.0
4,000	20	247	5.3	30	322	3.1	21	258	7.0	24	270	7.3	19	284	6.9	31	269	8.6				19	272	9.4	11	277	9.9	20	249	6.6	14	280	6.4	29	282	1.7
5,000	16	260	4.8	28	300	2.7	14	272	6.0	18	276	10.7	16	268	8.1	29	267	11.0				18	280	12.9	10	282	11.0	17	244	6.6				27	304	1.3
6,000	12	263	4.6	24	295	3.7	11	264	5.5	16	279	12.2	10	283	7.7	28	269	11.4				15	281	14.0				12	240	8.0				21	308	1.5
8,000	10	283	4.1	17	276	6.7										21	274	12.8																16	284	2.5
10,000				12	268	9.1																												13	287	5.5

Altitude (meters) m.s.l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	211	1.0	31	277	3.1	31	214	0.7	29	297	2.3	29	121	2.2	30	203	2.2	31	209	2.2	31	196	1.5	31	305	2.2	31	116	4.0	31	199	2.5	30	270	0.3
500	--	---	----	--	---	----	31	224	1.3	--	---	----	29	178	3.7	30	212	3.2	--	---	----	31	205	1.9	30	302	2.4	31	125	4.7	31	213	3.3	30	254	1.4
1,000	--	---	----	--	---	----	31	237	2.4	29	292	2.8	29	210	3.6	29	229	3.0	31	194	2.9	31	244	2.7	30	324	2.7	31	125	4.2	30	225	3.6	30	261	2.7
1,500	--	---	---	31	276	3.1	28	250	3.6	29	287	3.5	29	233	3.9	28	251	3.4	31	199	3.3	26	250	4.1	30	310	2.3	30	121	3.7	27	243	3.0	28	254	4.0
2,000	31	214	1.4	31	289	3.0	26	263	5.9	28	276	3.2	29	230	4.1	27	264	3.2	31	216	3.8	23	258	4.7	31	246	1.0	29	123	3.2	22	256	3.9	25	254	5.7
2,500	31	227	2.6	31	295	3.4	24	265	8.1	24	279	4.4	29	233	3.9	24	261	4.1	31	221	4.0	19	251	5.9	31	224	2.3	29	116	2.6	12	279	3.3	24	257	5.7
3,000	30	243	2.8	31	294	3.5	23	265	8.5	24	272	5.1	29	230	4.1	21	269	5.3	31	225	4.6	14	262	7.6	30	226	3.5	29	126	2.7				19	264	6.0
4,000	29	259	3.3	30	277	5.2	17	269	9.8	21	277	6.3	25	208	3.4	18	287	6.6	29	240	4.0	11	269	7.7	29	249	5.3	20	155	4.0				14	277	5.7
5,000	19	277	5.4	28	274	6.6	12	264	11.1	18	277	8.1	21	216	2.9	11	273	9.0	27	254	4.3				29	256	6.5	11	138	3.7				10	279	4.6
6,000	16	275	6.5	25	281	7.8				17	280	10.6	16	203	2.4				25	250	6.4				29	257	8.1									
8,000				23	269	12.1				10	273	12.3	10	75	2.0				20	254	9.0				24	271	10.5									
10,000				17	265	19.9													16	253	14.0				12	270	14.3									

Altitude (meters) m.s.l.	New York, N.Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	233	2.0	31	301	5.7	30	174	3.7	31	166	0.9	31	256	1.0	31	31	2.8	30	245	2.5	31	252	1.6	31	156	4.0	30	262	3.8	30	265	2.0	31	289	2.4
500	30	240	4.2	31	263	3.3	30	171	4.2	31	184	1.3	31	267	1.6	--	---	----	30	243	2.9	31	258	1.4	31	158	4.6	30	252	2.3	30	264	4.3	31	289	1.5
1,000	28	260	4.8	30	223	2.8	30	180	5.0	30	189	1.7	31	257	2.1	31	30	2.7	30	249	3.6	30	254	2.0	31	156	4.8	26	280	1.1	27	267	6.0	31	244	1.0
1,500	27	266	5.9	30	207	3.0	26	204	4.9	29	211	1.7	31	249	2.3	31	356	2.5	30	243	4.2	27	254	2.9	31	156	4.8	25	281	.7	24	281	5.7	29	228	1.2
2,000	23	272	6.7	30	201	2.8	19	228	4.7	26	261	2.2	31	251	2.1	31	314	2.3	27	259	4.8	24	250	2.3	30	171	4.0	24	280	.3	24	276	6.2	27	243	1.9
2,500	22	270	7.2	30	216	2.4	17	242	4.4	22	279	4.5	30	241	1.4	31	302	4.2	22	274	6.3	20	265	4.5	26	186	3.5	24	171	.3	20	280	6.4	24	248	2.3
3,000	16	273	6.6	30	209	2.4	16	258	4.7	21	283	6.3	28	242	1.2	26	278	6.3	19	273	6.4	17	269	5.7	23	196	3.3	24	194	.9	18	295	8.7	22	256	3.1
4,000	10	269	6.7	30	216	3.2	13	286	7.1	18	290	9.2	27	214	2.4	21	290	9.3	14	274	8.1	14	268	6.6	19	212	2.7	23	192	1.8	16	302	9.3	22	269	5.5
5,000				30	225	3.4				15	296	10.2	22	238	1.7	17	287	10.5	10	274	10.0	11	265	7.8	13	205	1.8	22	185	2.6	12	320	8.8	21	271	7.6
6,000				30	259	3.1				14	289	11.6	18	262	1.7	15	293	10.8										21	177	3.2	12	312	10.3	20	276	9.6
8,000				28	272	6.0							12	254	4.3													17	215	6.1				16	275	12.8
10,000				24	264	9.6																						16	221	10.3				13	272	12.5
12,000				20	255	15.2																						13	229	11.2				10	258	16.3
14,000																												10	247	7.8						

Altitude (meters) m.s.l.	Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	222	2.0	29	213	2.0
500	--	---	----	29	229	2.6
1,000	31	228	2.9	29	244	3.3
1,500	31	234	3.1	26	260	4.5
2,000	30	231	2.6	25	271	5.9
2,500	28	234	3.3	23	268	7.6
3,000	26	237	4.2	21	269	8.9
4,000	20	246	7.8	17	271	9.8
5,000	16	247	9.4	15	277	11.1
6,000	16	254	12.4	11	276	12.6

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

ble 22 — JULY 1950

Altitude (meters) m s.l	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			International Falls, Minn. (358 m.)			Little Rock, Ark. (80 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface----------	31	116	4.9	31	138	3.6	31	83	0.3	31	131	5.7	31	238	2.2	31	195	1.2	31	152	1.2	31	336	1.4	31	194	1.0	29	201	3.1	31	188	1.1	31	163	1.0
0----------	--	---	----	--	---	----	--	---	----	31	147	11.6	31	260	5.4	31	220	6.8	30	161	1.3	--	---	----	31	204	2.9	28	236	7.1	31	206	2.8	31	178	3.5
000----------	--	---	----	31	145	5.9	29	315	2.0	29	149	10.9	31	272	6.7	31	225	6.5	30	192	1.3	--	---	----	31	222	3.7	28	238	8.1	30	243	4.1	30	191	3.6
500----------	--	---	----	31	160	6.6	29	291	4.0	29	153	8.5	31	273	7.4	31	234	6.1	30	200	2.3	31	336	1.3	31	235	3.6	27	240	7.9	30	258	5.1	30	200	3.5
000----------	31	131	3.7	31	172	5.6	29	289	5.6	27	154	6.9	31	273	7.9	31	239	5.3	31	232	3.5	31	320	2.1	31	246	4.7	27	241	7.8	30	264	5.7	30	236	3.5
500----------	31	203	1.0	31	185	4.1	29	297	6.5	26	176	5.2	31	274	8.3	31	240	5.2	31	248	3.4	31	303	2.5	31	253	5.4	25	241	7.7	30	277	5.5	30	248	3.9
000----------	31	270	1.1	31	200	2.4	29	299	7.4	26	149	4.8	31	266	9.6	31	239	5.3	31	261	3.6	31	292	3.2	31	253	6.2	26	241	8.2	30	288	5.3	30	269	4.5
000----------	31	312	3.4	31	317	1.5	31	299	7.9	23	135	4.0	31	265	10.8	31	239	5.0	31	276	4.6	31	298	4.4	31	251	6.9	26	238	8.5	30	287	6.2	30	284	5.4
000----------	31	311	4.4	30	344	2.2	30	294	9.7	23	117	3.6	31	265	13.9	31	234	6.1	30	287	6.1	30	297	5.8	31	256	7.8	25	241	8.3	30	292	7.5	30	288	6.3
000----------	31	301	5.0	27	342	2.0	30	291	10.7	21	105	3.5	31	261	15.3	31	230	6.6	30	294	8.3	28	287	8.3	31	252	8.6	24	243	8.2	31	291	8.5	30	291	7.7
000----------	30	274	6.4	27	337	3.7	29	287	14.9	20	97	3.9	30	261	19.0	31	228	6.0	30	292	12.7	28	276	12.0	30	250	11.5	22	249	8.1	30	294	11.0	30	285	9.7
,000----------	30	272	9.6	28	333	5.2	26	286	19.1	19	101	4.0	26	269	23.8	30	239	5.3	30	279	17.6	26	266	19.0	29	249	14.0	22	254	8.9	26	295	13.3	28	289	11.9
,000----------	30	269	11.0	26	338	6.9	22	280	19.8	17	108	3.5	19	264	23.3	30	258	7.0	29	286	23.0	21	269	20.9	28	256	14.7	22	267	9.4	24	272	17.9	27	296	12.0
,000----------	25	277	9.4	22	355	4.8	20	280	17.6	15	146	1.4	14	269	17.9	27	286	5.8	20	287	18.8	17	272	18.2	24	268	9.8	19	291	8.2	13	302	14.7	26	297	12.7
,000----------	16	300	3.0	10	32	6.8	14	285	10.8	11	72	5.1	12	270	11.0	14	229	3.3				11	308	8.5	16	260	3.2	10	4	1.4				19	351	6.7

	Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			New Orleans, La. (6 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P. R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface----------	31	328	5.9	31	90	1.6	31	222	2.3	31	187	1.0	31	177	1.9	31	291	4.9	31	136	2.8	31	78	1.1	31	131	6.7	31	75	3.8	31	191	1.0	31	283	4.0
0----------	31	326	5.9	31	111	4.5	31	247	8.7	31	192	2.6	31	189	3.5	31	271	5.5	28	143	3.4	--	---	----	31	141	9.7	31	84	8.8	30	217	2.0	31	303	1.8
000----------	31	330	5.8	31	121	5.0	31	257	7.6	31	219	3.2	31	188	2.2	31	262	4.9	27	175	5.1	31	77	1.0	31	149	10.5	31	90	9.2	30	241	3.6	31	270	1.7
500----------	31	314	3.9	31	125	5.2	31	260	8.0	31	232	4.1	31	176	1.4	31	258	3.1	29	198	5.6	31	84	.3	31	157	6.6	31	91	9.7	30	256	3.7	31	256	.7
000----------	31	297	3.0	31	126	5.0	31	260	9.0	31	240	5.1	31	179	1.2	31	251	1.7	30	222	4.3	31	254	1.0	31	176	4.2	31	91	9.6	30	272	4.6	31	104	1.0
500----------	31	271	3.0	31	132	4.2	30	258	9.7	31	251	5.2	30	216	1.1	31	243	1.3	31	235	3.8	31	284	2.3	31	194	2.9	31	92	9.6	31	280	5.6	31	145	1.7
000----------	31	245	4.0	31	136	4.2	30	255	11.4	31	261	4.9	30	258	1.8	31	235	1.6	31	258	3.6	31	289	4.8	31	195	2.3	31	97	9.4	31	281	6.4	31	189	2.4
000----------	31	252	5.5	31	131	4.3	29	253	13.1	31	263	5.6	29	278	3.4	31	228	2.2	30	299	4.2	31	290	10.9	31	213	.9	31	89	8.2	31	286	8.5	30	199	2.2
000----------	30	254	7.4	30	122	4.9	29	254	14.8	30	269	7.2	29	282	4.1	30	249	3.3	30	303	4.3	30	288	12.5	30	315	1.1	31	90	7.1	31	288	9.7	30	223	2.3
000----------	29	256	9.5	30	124	5.3	29	255	17.9	30	271	8.6	26	280	4.4	30	261	3.3	30	303	6.6	30	288	14.8	30	347	1.6	31	88	4.6	31	288	11.3	30	254	3.4
000----------	28	252	12.7	30	98	4.3	25	258	24.6	30	268	11.6	23	276	4.7	30	281	6.4	27	299	9.8	29	282	19.0	30	11	2.8	30	133	3.0	30	286	14.3	30	247	5.2
,000----------	28	260	15.8	30	50	6.4	13	259	27.0	30	266	14.3	22	285	4.7	28	270	9.6	27	295	13.6	28	276	24.1	29	50	3.0	29	207	4.6	27	280	20.9	30	243	9.1
,000----------	23	260	19.0	29	39	8.1				27	268	16.9	18	318	3.6	22	255	12.6	27	297	16.3	23	273	25.4	29	52	6.4	28	221	5.5	19	280	21.8	29	243	10.1
,000----------	13	256	16.8	23	44	8.9				25	283	12.8	15	13	2.1	12	246	11.1	24	301	12.1	18	281	20.6	26	30	6.3	26	190	4.2	15	300	21.2	29	238	8.0
,000----------				17	109	6.4				15	291	3.8							22	330	7.0	10	294	10.3	13	52	9.2	16	114	8.8	12	305	14.4	25	207	2.3
,000----------				13	111	10.3				13	76	3.8							13	74	4.3							11	92	12.6				16	92	5.9

	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
rface----------	31	286	1.3	31	229	1.1	31	225	3.1
0----------	30	292	4.2	--	---	----	31	274	4.9
000----------	30	288	5.5	31	255	1.7	31	273	3.8
500----------	30	283	6.2	31	273	2.8	31	283	2.7
000----------	30	278	7.3	31	268	3.1	31	286	2.7
500----------	30	277	7.6	31	267	3.5	31	270	3.9
000----------	30	286	8.3	31	267	4.3	31	271	4.8
000----------	29	290	8.3	30	266	7.5	31	265	6.6
000----------	29	285	10.0	30	265	10.6	31	266	8.2
000----------	27	279	10.7	31	269	12.3	30	266	10.1
000----------	26	285	14.5	28	276	15.2	28	263	13.1
,000----------	21	297	12.2	19	287	15.9	25	257	14.0
,000----------	16	275	14.6	16	284	17.8	22	260	16.3
,000----------	11	281	14.0	11	276	17.0	19	255	15.3
,000----------							15	259	11.5

'hese free-air resultant winds are based on rawin observations made near 0300 C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

ote: Resultants prepared from rawins at high altitudes are biased toward wer wind speeds. Values appearing in this table should therefore be used th caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.

SOLAR RADIATION DATA

Table 30.—Solar radiation intensities, tabulated in langleys. JULY 1

Date	Sun's zenith distance									Vapor pressure, E.S.T.	
	A. M.				0.0°	P. M.					
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	7:30 a. m.	1:30 p. m.
TABLE MOUNTAIN, CALIF.											
	Air mass										
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
										Mb.	*Mb.*
July											
11	----	----	----	1.39	----	----	----	----	----	----	----
12	----	----	----	1.36	----	----	----	----	----	----	----
15	----	----	----	1.31	----	----	----	----	----	----	----
17	----	----	----	1.31	----	----	----	----	----	----	----
18	----	----	----	1.43	----	----	----	----	----	----	----
20	----	----	----	1.32	----	----	----	----	----	----	----
21	----	----	----	1.28	----	----	----	----	----	----	----
29	1.09	1.18	1.28	1.40	----	----	----	----	----	----	----
31	----	----	----	1.26	----	----	----	----	----	----	----
Averages	1.09	1.18	1.28	1.34	----	----	----	----	----	----	----
Departures	-.01	-.01	-.01	-.05	----	----	----	----	----	----	----
LINCOLN, NEBR.											
	Air mass										
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
										Mb.	*Mb.*
July											
6	----	----	----	----	1.29	0.99	0.84	0.71	0.64	12.3	12.7
13	----	----	----	----	1.31	1.08	.90	.79	.71	11.4	10.6
14	----	----	----	----	1.29	1.10	.99	.92	.86	13.2	15.3
Averages	----	----	----	----	1.30	1.06	.91	.81	.74	----	----
Departures	----	----	----	----	-.03	.00	+.03	+.06	+.08	----	----
MADISON, WIS.											
	Air mass										
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
										Mb.	*Mb.*
July											
3	0.44	0.49	----	----	----	----	----	----	----	13.7	19.6
4	.64	.77	.91	1.07	1.28	----	----	----	----	16.5	12.7
5	.63	.75	.87	1.07	1.34	----	----	----	----	13.7	13.2
6	.59	.71	.83	.98	1.23	----	----	----	----	13.7	12.3
7	.53	.61	.75	.92	1.16	----	----	----	----	15.3	15.3
11	----	----	.33	.48	----	----	----	----	----	18.3	16.5
13	.84	.94	1.03	1.11	1.28	----	----	----	----	10.2	10.6
14	.77	.86	.96	1.11	1.32	----	----	----	----	11.4	11.4
18	.66	.79	.90	1.04	----	----	----	----	----	17.7	17.0
21	.76	.84	.95	1.08	1.27	----	----	----	----	13.2	13.7
22	.52	.63	.73	.90	1.08	----	----	----	----	17.0	15.8
24	.71	.80	.91	1.06	1.30	----	----	----	----	17.0	15.3
26	----	----	----	----	1.24	----	----	----	----	17.7	18.3
27	----	----	.74	.90	1.22	----	----	----	----	17.7	17.7
28	.54	.66	.77	.96	1.21	----	----	----	----	17.0	18.3
29	.54	.60	.73	.90	----	----	----	----	----	18.3	16.5
Averages	.63	.73	.82	.97	1.24	----	----	----	----	----	----
Departures	.00	-.01	-.04	-.07	-.04	----	----	----	----	----	----

Date	Sun's zenith distance									Vapor pressur E.S.T.	
	A. M.				0.0°	P. M.					
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°	7:30 a. m.	1: p.
BLUE HILL, MASS.											
	Air mass										
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
										Mb.	*M*
July											
2	0.60	0.67	0.79	0.97	1.24	----	----	----	----	12.9	14
13	----	----	----	.81	----	----	----	----	----	22.3	19
14	----	----	----	----	----	1.24	1.08	0.96	0.83	13.9	13
18	.51	.60	.78	.93	----	----	----	----	----	24.7	25
21	.87	.96	1.08	1.24	1.43	1.08	.98	.85	.74	12.0	11
22	.74	.85	.99	1.13	1.41	1.03	.93	.75	.64	13.1	11
23	.58	.67	.82	1.00	1.29	----	----	----	----	16.3	16
24	.66	.76	.91	1.10	1.36	----	----	----	----	16.6	13
27	.59	.69	.80	.92	1.25	----	----	----	----	14.4	11
29	.42	.52	.67	.85	----	.95	.67	.54	.42	17.0	14
30	----	----	----	.79	1.18	----	----	----	----	18.7	17
31	.51	.62	.70	.90	----	----	----	----	----	19.7	19
Averages	.61	.70	.84	.97	1.31	1.08	.92	.78	.66	----	--
Departures	-.03	-.02	-.03	-.06	+.02	+.06	+.08	+.07	+.03	----	--
ALBUQUERQUE, NEW MEXICO											
	Air mass										
	4.08	3.26	2.44	1.63	*0.82	1.63	2.44	3.26	4.08		
										Mb.	*M*
July											
2	0.72	0.81	0.96	1.12	1.32	----	0.93	0.79	0.57	6.5	7
3	----	----	----	.95	1.25	----	----	----	----	6.8	8
4	.56	.65	.77	.99	1.26	----	----	----	----	9.8	9
5	----	----	----	1.00	----	----	----	----	----	9.1	10
6	----	----	----	.72	----	----	.78	----	----	11.0	9
7	----	.60	----	----	----	----	----	----	----	12.2	12
8	----	.52	----	----	----	----	----	----	----	13.1	11
11	----	----	----	----	----	1.10	.91	.85	.76	14.6	9
12	.78	.89	1.03	1.18	1.36	1.14	.87	.86	----	12.2	9
13	----	----	----	1.05	----	----	----	.83	----	10.2	9
14	.59	.69	.87	1.08	1.32	----	.87	.80	.70	11.8	6
15	.66	.79	.90	1.09	1.24	----	.42	----	----	9.8	6
16	.65	.74	.90	1.06	1.22	----	.97	----	----	8.8	6
17	.60	.71	.83	----	----	.98	----	----	.71	9.1	7
18	----	.39	.93	----	----	----	.99	.61	.76	8.8	10
19	.78	.91	1.00	1.18	1.31	1.04	----	----	----	9.8	7
20	.74	.82	.95	1.14	1.36	1.17	1.01	----	----	8.2	5
21	.67	.69	.92	1.05	1.29	----	----	----	----	11.0	11
22	.63	.45	.86	.93	1.36	1.04	.84	.70	.38	10.2	8
23	----	----	.55	1.00	----	----	.79	----	.68	9.5	9
24	----	----	.36	----	----	.96	.73	.69	.68	10.6	9
25	.69	.80	----	.84	----	----	.88	----	----	11.0	7
26	----	----	----	----	----	1.04	.40	----	----	11.0	7
27	.69	.79	.92	1.12	1.36	.32	----	----	----	11.0	9
28	.74	.85	.97	1.15	1.33	1.14	.90	----	----	9.8	8
29	.55	----	----	----	----	----	----	----	----	10.6	9
30	----	----	.61	1.10	----	----	----	----	----	11.4	13
31	----	----	----	----	----	1.10	----	----	----	11.8	9
Averages	.67	.71	.84	1.04	1.31	1.00	.82	.77	.66	----	--
Departures	-.05	-.09	-.08	-.05	-.07	-.12	-.14	-.14	-.11	----	--

* Extrapolated

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.

An explanation of Tables 30 and 33 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list pyrheliometric stations is given on page 45 of that issue. An explanation the formula used in computing the air mass values for each station listed Table 30 appears in volume 75, No. 3, March 1947, p. 47.

Table 31.—Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during July 195

Date	2	3	4	5	6	7	8	Average	9	10	11	12	13	14	15	Average	16	17	18	19	20	21	22	A
Langleys	249	229	109	217	193	244	252	213	263	190	157	183	263	258	248	223	108	197	202	268	37	271	270	1
Date	23	24	25	26	27	28	29	Average																
Langleys	220	267	192	242	265	---	260	241																

Table 32.—Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during July 195

Date	2	3	4	5	6	7	8	Average	9	10	11	12	13	14	15	Average	16	17	18	19	20	21	22	A
Langleys	176	158	97	161	137	179	149	151	172	150	144	129	142	193	---	155	115	157	143	164	32	137	141	1
Date	23	24	25	26	27	28	29	Average																
Langleys	134	120	117	152	121	135	128	130																

Note.—Langley is the unit used to denote one gram calorie per square centimeter.

Table 33.--Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. JULY 1950

	Honolulu, T.H.	Pearl Harbor, T.H.	Brownsville, Texas	Gainesville, Fla.	Apalachicola, Fla.	Lake Charles, La.	El Paso, Texas	Ft. Worth, Texas	La Jolla, Calif.	Charleston, S.C.	Griffin, Ga.	Phoenix, Ariz.	Riverside, Calif.	Santa Maria, Calif.	Albuquerque, N.M.	Hatteras, N.C.	Oklahoma City, Okla.	Raleigh, N.C.	Oak Ridge, Tenn.	Las Vegas, Nev.	Nashville, Tenn.	Stillwater, Okla.	Fresno, Calif.	Davis, Calif.	Washington, D.C.	Seabrook, N.J.	Indianapolis, Ind.	Grand Lake, Colo.	Salt Lake City, Utah	New York, N.Y.	State College, Pa.	Lincoln, Nebr.	Newport, R.I.
1950																																	
July 2	648	579	---	512	(578)	615	748	693	650	333	617	707	633	791	715	411	624	633	701	740	632	621	802	705	652	684	380	498	---	557	563	475	696
July 3	564	562	---	436	297	556	742	585	721	407	518	623	625	(718)	669	491	488	614	515	693	570	486	779	736	475	431	348	449	---	506	338	627	531
July 4	553	549	---	554	548	543	688	482	587	416	678	675	621	755	663	585	342	673	546	452	360	324	751	739	577	523	593	566	---	358	271	458	389
July 5	440	431	---	368	374	485	731	262	258	511	427	321	395	718	655	599	442	623	236	288	427	452	716	753	376	387	608	599	---	365	299	592	671
July 6	641	592	---	496	367	353	547	683	662	492	508	473	419	605	723	702	559	325	390	585	487	516	702	686	194	212	671	812	---	298	514	774	409
July 7	549	717	---	163	233	396	615	253	385	294	335	447	468	750	666	69	603	330	742	659	720	429	717	684	741	673	567	342	---	692	709	686	684
July 8	673	701	---	85	415	673	692	526	480	140	643	562	483	638	614	59	443	160	691	573	684	479	709	697	530	525	707	354	---	446	762	339	367
Averages	581	590	---	373	402	517	680	498	535	370	532	544	521	(711)	672	417	500	480	546	570	554	472	740	714	506	491	554	517	---	460	494	564	535
Departures	-26	-26	---	-68	-51	-14	-8	-15	-28	---	---	-96	-97	+13	---	---	-41	---	-3	-99	+34	---	+30	-4	-11	---	---	-67	---	-51	-14	-28	-34
July 9	675	631	---	308	296	694	756	576	561	(261)	409	568	539	522	702	599	264	159	726	654	690	148	648	---	323	466	653	447	---	510	513	139	638
July 10	611	642	---	300	717	286	684	190	368	(457)	465	742	602	366	643	551	407	373	702	774	627	230	713	695	370	502	710	591	---	72	65	123	285
July 11	657	743	---	308	287	492	(700)	391	282	519	345	764	638	627	663	533	336	282	521	780	480	326	760	724	492	560	680	485	---	256	366	364	371
July 12	676	689	---	671	643	562	586	476	353	691	437	761	621	648	681	574	491	449	247	779	372	366	763	661	215	280	697	772	---	422	643	404	213
July 13	690	696	---	679	692	445	484	213	427	719	331	746	621	695	633	626	679	534	418	776	248	704	719	682	460	383	495	740	---	404	259	788	580
July 14	656	657	---	528	717	(285)	761	465	381	472	275	730	599	682	709	706	743	451	213	770	506	733	743	678	418	501	791	627	---	595	747	734	656
July 15	617	674	---	605	744	329	602	604	286	617	464	731	580	671	595	632	612	417	196	774	126	574	756	720	122	123	685	667	---	282	210	312	482
Averages	655	676	---	486	585	(442)	653	416	380	534	389	720	600	602	661	603	505	381	432	758	435	440	729	693	343	402	673	618	---	364	400	409	461
Departures	+40	+32	---	+8	+33	-83	-4	-80	-189	---	---	+50	-4	-28	---	---	+35	---	-49	+50	-48	---	+27	+2	-148	---	---	+45	---	-109	-126	-174	-55
July 16	583	644	---	559	469	672	710	690	272	719	542	730	587	528	548	576	649	473	430	775	448	363	753	665	367	281	467	678	---	135	381	500	107
July 17	439	502	688	650	629	642	755	634	390	(506)	595	692	570	507	640	711	285	667	521	752	501	198	767	695	464	543	610	471	---	450	497	481	519
July 18	309	588	651	450	641	710	659	612	627	575	561	698	607	594	613	703	198	591	424	727	404	310	771	687	467	551	521	380	681	517	552	170	593
July 19	686	731	(687)	445	740	711	571	703	678	627	703	666	562	610	729	632	400	684	571	766	674	294	775	687	562	648	342	571	584	636	654	226	713
July 20	623	680	660	662	719	741	616	616	598	661	557	717	601	663	739	699	422	666	455	722	432	438	762	705	347	513	419	518	729	246	412	729	112
July 21	720	734	682	579	515	726	530	700	595	650	581	697	604	647	621	427	331	552	589	722	394	239	761	702	398	646	704	609	729	743	728	362	732
July 22	607	566	664	630	732	676	654	615	589	720	438	671	599	692	742	618	297	468	592	740	418	523	740	664	623	588	685	543	609	686	656	591	731
Averages	567	635	672	568	635	697	642	653	536	637	568	696	590	606	662	624	369	586	512	744	467	338	761	686	461	539	535	539	666	488	554	437	501
Departures	-48	-10	---	+17	+61	+116	+2	+104	-6	---	---	+1	+6	-9	---	---	-57	---	+54	+14	-44	---	+71	-1	-25	-2	---	-23	+32	+30	+68	+135	+18
July 23	722	685	698	696	682	478	603	427	498	376	519	668	583	639	706	617	727	677	269	695	251	683	758	700	559	569	301	537	---	525	489	514	---
July 24	674	625	574	740	710	580	577	627	594	333	571	595	534	650	691	697	574	508	263	563	343	596	744	667	227	413	534	462	---	366	110	615	681
July 25	682	703	615	694	595	323	480	667	688	559	701	612	577	682	678	681	258	631	426	659	555	309	728	672	674	559	621	464	568	616	689	207	549
July 26	548	450	705	648	153	635	613	214	639	678	530	680	537	645	717	503	309	562	271	711	251	442	648	586	207	275	542	587	542	404	230	450	517
July 27	611	565	621	617	538	438	637	274	627	411	350	692	598	617	537	(588)	568	231	362	662	433	562	730	649	630	591	535	463	634	671	679	563	667
July 28	727	667	708	405	128	357	721	470	---	(540)	414	703	598	676	722	563	440	410	509	710	449	225	773	665	574	515	683	612	480	619	470	537	614
July 29	729	726	696	270	284	606	734	623	694	454	575	718	547	(623)	572	350	340	602	517	724	615	495	781	770	609	603	661	724	663	634	617	586	669
Averages	670	632	659	581	442	488	623	472	623	479	523	667	568	(647)	661	571	460	517	374	675	414	473	737	673	497	504	557	550	577	548	469	496	616
Departures	+40	+20	---	+47	-66	-63	+12	-77	+101	---	---	-3	+9	+8	---	---	-19	---	-51	-6	-75	---	+63	+13	-1	+13	---	-6	-13	+91	-34	-55	+109
Accumulated Departures January 1 to July 29, 1950																																	
	-196	+301	---	+224	---	---	---	---	---	---	---	---	-2821	---	---	---	---	---	---	---	---	---	+11,396	-7	-4060	---	---	+329	---	-3640	-2303	+756	-2569

NOTE.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Beginning with this issue, 10 new stations are being added to Table 33, and these stations will appear regularly in that Table in future editions. A listing of these stations, together with a brief description of each, follows:

1. Indianapolis, Indiana: Latitude 39° 44'N.; longitude 86° 16'W.; elevation 254 meters; Brown integrating potentiometer; good exposure; infrequent light to heavy smoke pollution; equipment located at Weather Bureau Airport Station, Municipal Airport.

2. Lander, Wyoming: Latitude 42° 48'N.; longitude 108° 43'W.; elevation 1699 meters; Brown integrating potentiometer; good exposure; there are no important sources of atmospheric pollution; equipment located at Weather Bureau Office.

3. Rapid City, South Dakota: Latitude 44° 09'N.; longitude 103° 06'W.; elevation 996 meters; Brown integrating potentiometer; excellent exposure, but station to be relocated, probably during September, 1950, south of present site; no important sources of atmospheric pollution; equipment located at Weather Bureau Airport Station.

4. St. Cloud, Minnesota: Latitude 45° 35'N.; longitude 94° 11'W.; elevation 326 meters; Brown integrating potentiometer; excellent exposure; only rare occurrences of pollution—railroad yard and round house approximately 1 1/2 miles south south-west of office; equipment located at Weather Bureau Airport Station.

5. Sault Ste. Marie, Michigan: Latitude 46° 28'N.; longitude 84° 22'W.; elevation 224 meters; Brown strip-chart recorder; good exposure; pollution light at station, but heavy at times over St. Mary's River, 2 miles north; equipment located at Weather Bureau Airport Station, Municipal Airport.

SOLAR RADIATION DATA

Table 33.--Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.- Continued JULY 1950

	Joliet, Ill.	Put-in-Bay, Ohio	East Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Medford, Oreg.	Amherst, Mass.	Lynn, Mass.	Ithaca, N.Y.	Twin Falls, Idaho	Albany, N.Y.	Lander, Wyo.	E. Lansing, Mich.	Madison, Wis.	Boise, Idaho	Portland, Me.	Toronto, Ontario	Rapid City, S.D.	Ottawa, Ontario	St. Cloud, Minn.	North Head, Wash.	Sault Ste. Marie, Mich.	Bismarck, N.D.	Caribou, Me.	Great Falls, Mont.	Spokane, Wash.	Seattle (Univ. of Wash.), Wash.	Glasgow, Mont.	Winnepeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska	Aklavik, MacKenzie	Ely, Nev.
1950																																	
July 2		464	638	722	650	814	460	655	468	704	587	546	463	751	773	759	169	369	328	614	782	312	591	747	636	780	748	793	540		620	392	435
July 3		390	427	556	527	791	589	551	556	720	423	722	448	371	773	521	651	835	451	661	455	532	837	352	729	753	750	795	646		665	423	552
July 4		567	342	253	220	798	145	237	233	660	216	508	578	661	721	210	620	498	397	703	284	168	810	380	751	682	704	803	483		554	324	580
July 5		641	614	588	635	826	587	678	478	692	584	703	402	750	643	654	316	666	348	587	469	576	312	626	704	719	720	801	714		459	734	501
July 6		773	370	430	---	811	500	466	574	551	626	714	606	750	714	492	585	725	534	580	455	774	750	130	798	775	435	737	699		677	737	287
July 7		775	557	673	---	812	669	667	769	520	758	242	647	749	687	579	604	520	734	556	654	752	827	410	779	761	510	646	730		460	288	358
July 8		768	324	607	---	799	703	629	756	453	610	714	590	694	741	683	668	377	637	364	217	733	496	706	841	744	240	762	265		573	717	409
Averages		625	468	547	508	807	533	555	548	614	543	593	533	675	722	557	516	570	490	581	474	549	733	479	748	745	587	763	582		572	516	446
Departures		+30	-77	-25	-41	---	---	+22	-9	+4	-23	---	+30	+120	---	+17	-16	-88	-38	---	---	---	---	---	-3	+45	+24	---	---	+52		+101	-41	---
July 9		725	617	712	---	820	633	677	647	493	653	778	621	625	619	755	650	789	661	204	549	665	749	780	(562)	401	542	756	477		679	725	537
July 10		528	303	423	418	750	312	465	256	472	317	580	559	490	547	545	162	767	565	679	605	712	556	686	(258)	779	472	423	648		650	553	616
July 11		618	326	333	285	816	325	341	474	653	243	773	569	661	779	359	328	663	346	413	---	661	565	651	732	607	507	762	204		450	580	764
July 12		680	217	379	329	782	451	289	529	750	482	838	550	382	---	358	504	781	513	482	760	401	375	588	841	763	733	748	485		299	420	699
July 13		494	585	684	617	779	578	605	263	734	575	847	404	756	758	617	319	804	513	767	472	396	752	618	832	737	579	755	432		393	524	753
July 14		734	591	672	613	783	657	645	709	714	723	530	667	772	738	705	713	598	668	695	569	239	616	576	562	722	544	735	515		524	684	599
July 15		739	443	556	531	792	656	616	583	726	734	830	641	661	753	713	672	601	659	451	429	440	594	716	336	638	340	480			509	692	777
Averages		645	440	537	466	789	516	520	495	649	532	739	573	621	699	579	478	715	561	527	564	502	601	659	589	664	530	666	460		501	597	678
Departures		+99	-56	+23	+7	---	---	-9	-36	+31	00	+113	+115	+70	---	+8	-42	+66	+14	---	---	---	---	---	+82	-56	-23	---	---		00	+50	---
July 16		698	154	258	266	783	189	---	455	739	319	813	441	364	765	644	572	182	465	472	534	613	318	741	580	707	597	544			301	686	627
July 17		402	384	443	360	778	483	503	520	705	548	615	312	408	752	671	295	774	264	631	406	249	777	246	646	755	716	699	670		392	660	448
July 18		777	539	539	484	706	458	491	428	704	497	794	640	634	735	344	682	527	580	433	374	759	89	236	823	698	500	769	646		443	230	495
July 19		395	657	719	635	788	671	609	692	689	689	549	149	41	735	661	335	799	714	356	379	322	726	772	478	406	309	678	622		249	328	763
July 20		154	127	91	71	765	67	100	161	716	271	812	158	636	768	171	512	717	630	679	725	735	405	787	485	745	704	652	591		465	666	748
July 21		768	672	763	673	(747)	745	710	762	705	598	797	612	670	739	771	636	560	715	614	434	605	776	400	(764)	741	691	710	504		602	366	588
July 22		698	683	753	677	756	726	709	626	703	731	545	512	689	703	710	648	599	668	701	296	560	696	379	786	658	667	778	306		624	401	553
Averages		556	459	509	452	(760)	474	520	521	709	522	703	403	492	743	567	526	594	577	555	450	549	542	509	652	673	598	690	567		439	477	604
Departures		+22	-12	+18	+18	---	---	-14	+14	+87	-7	+7	-44	-43	---	-6	+82	-72	+32	---	---	---	---	---	-19	+6	+22	---	---	+14		+10	+36	---
July 23		631	639	560	482	741	654	661	625	673	649	613	501	495	720	618	584	751	421	625	520	200	473	650	665	736	658	522	692		456	394	477
July 24		554	647	711	619	735	514	687	153	675	440	703	466	701	729	626	124	405	350	648	642	330	578	437	771	724	681	726	663		314	167	588
July 25		703	409	470	450	729	548	445	384	622	413	645	460	485	699	378	488	790	389	471	334	729	721	110	782	684	590	741	665		667	250	570
July 26		618	540	578	469	753	529	541	585	629	576	611	452	614	670	656	489	765	704	698	517	706	751	272	751	707	174	723	685		436	195	361
July 27		---	624	667	561	651	634	625	502	532	643	430	563	666	703	579	610	724	544	501	184	624	731	645	610	677	316	709	665		451	250	486
July 28		---	575	643	525	553	560	443	475	491	536	400	515	653	615	505	526	697	546	687	175	683	753	602	(527)	355	437	658	681		280	129	725
July 29		614	609	695	617	765	643	639	559	705	528	520	570	642	736	674	494	489	551	610	501	337	669	313	716	267	341	167	600		488	109	758
Averages		624	578	618	532	704	583	577	469	618	541	560	504	608	696	577	474	660	501	606	410	516	678	433	689	593	457	606	664		442	213	561
Departures		+78	+92	+139	+64	---	---	+70	-17	+34	+35	-75	+30	+84	---	+32	-12	+15	-30	---	---	---	---	---	-25	+4	-32	---	---	+52		+37	-112	---
Accumulated Departures January 1 to July 29, 1950																																	
		+3570	-4319	+2975	+2779	---	---	---	---	+3073	---	---	+672	+3619	---	---	+385	---	---	---	---	---	---	---	---	---	---	---	---	---	---	+7399	---	---

NOTE.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

6. Bismarck, North Dakota: Latitude 46° 46'N.; longitude 100° 45'W.; elevation 518 meters; Brown strip-chart recorder; excellent exposure; no atmospheric pollution except during dry, windy weather; equipment located at Weather Bureau Office.

7. Great Falls, Montana: Latitude 47° 29'N.; longitude 111° 21'W.; elevation 1128 meters; Brown strip-chart recorder; recommended that pyrheliometer be raised to improve exposure; very slight and infrequent pollution with wind in northeast; equipment located at Weather Bureau Airport Station.

[illegible] (University of Washington): Latitude 47° 39'N.; longitude 122° [illegible] ing dump half mile to northeast and power house stack a third of a mile to southeast are sources of atmospheric pollution; equipment located at Thomson Hall, University of Washington.

9. Glasgow, Montana: Latitude 48° 11'N.; longitude 106° 38'W.; elevation 648 meters; Brown integrating potentiometer; good exposure; pollution from dust and smoke (R.R. tracks 200 ft. north of station); equipment located at Weather Bureau Office.

10. Ely, Nevada: Latitude 39° 17'N.; longitude 114° 52'W.; elevation 1913 meters; Brown strip-chart recorder; excellent exposure; pollution from smoke of Kennecott Copper smelter 7 miles to the north, and occasional dust storms; equipment located at Weather Bureau Airport Station.

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, July 1950

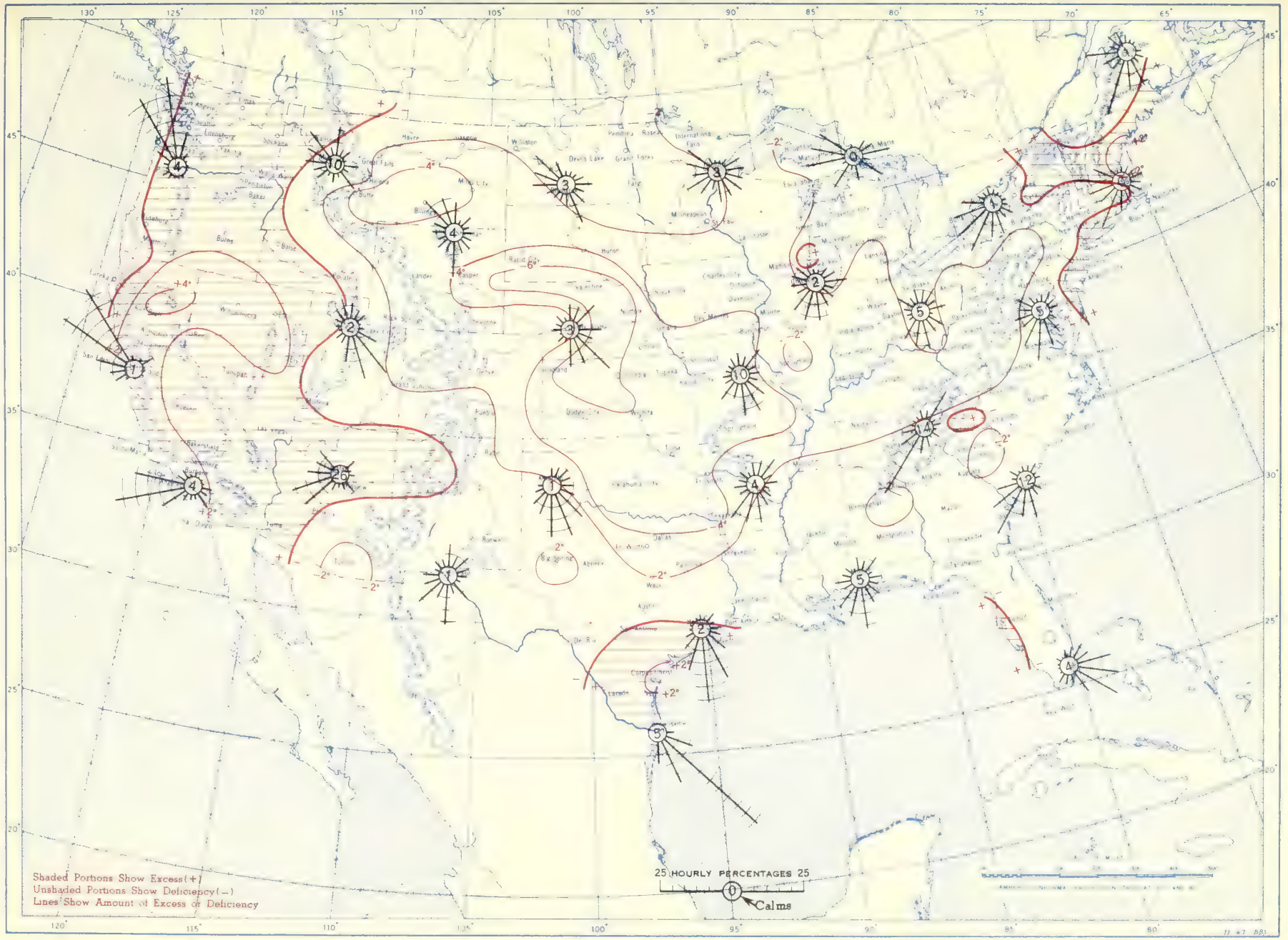
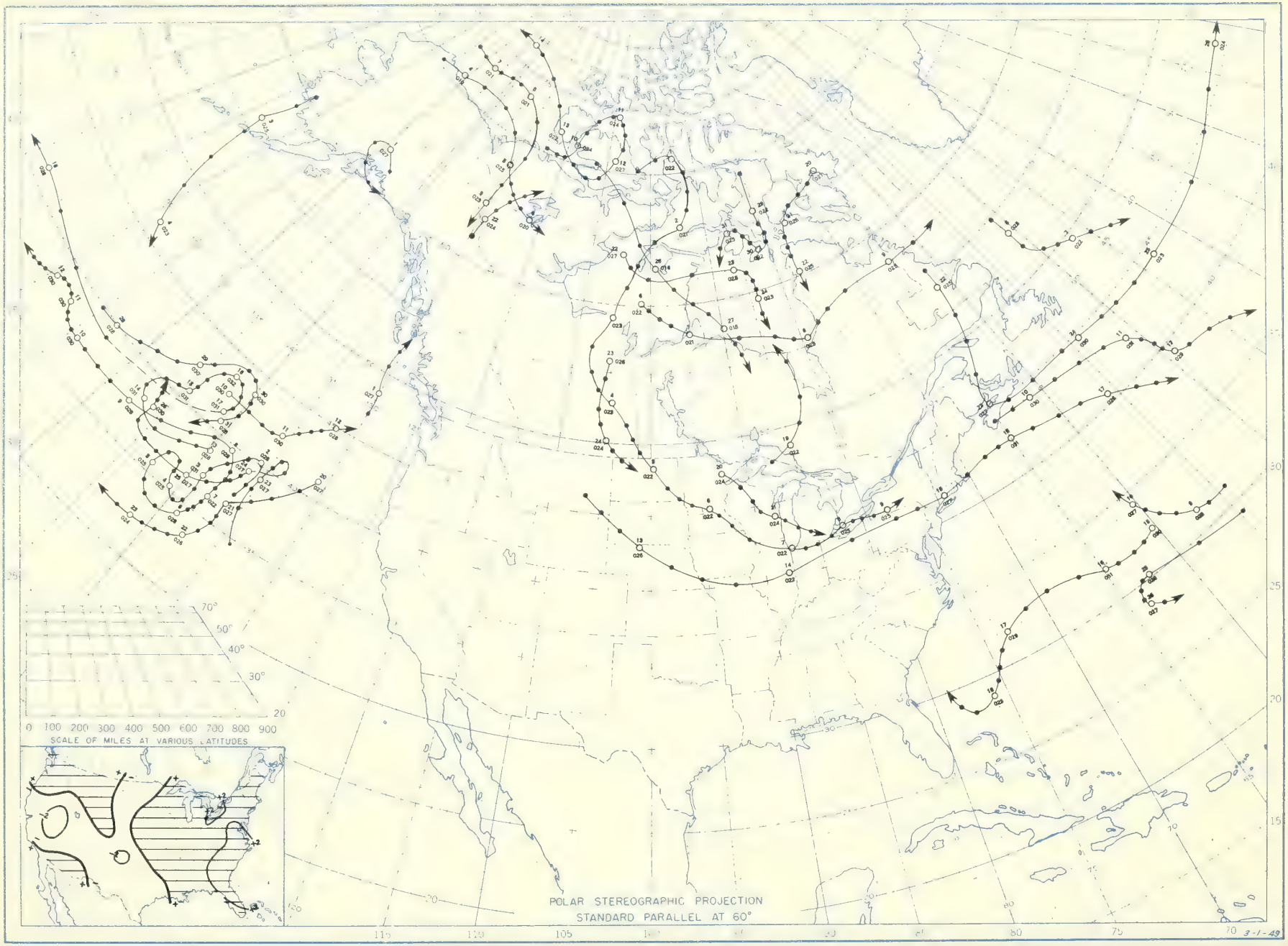
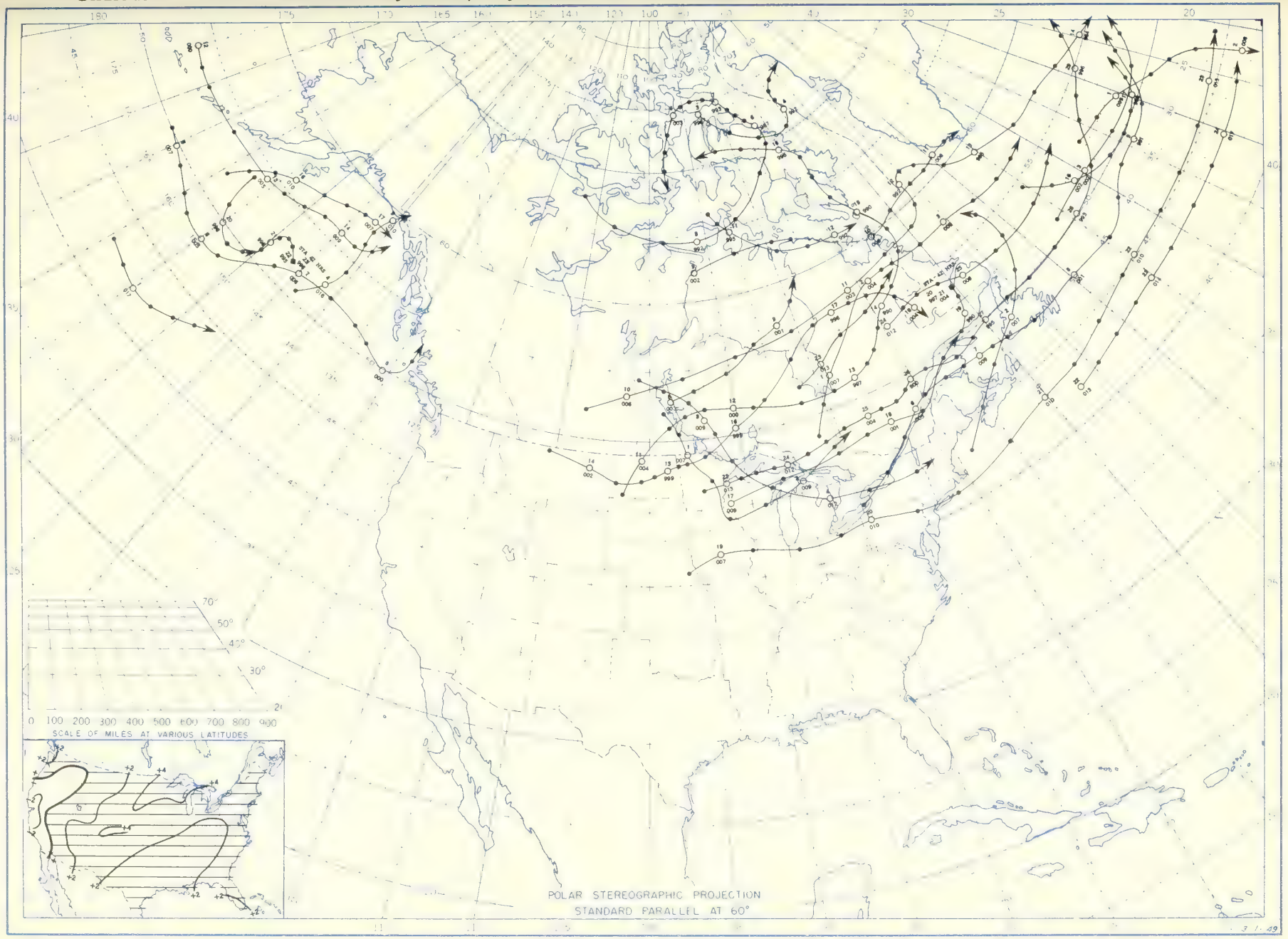


Chart II. Tracks of Centers of Anticyclones, July 1950. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure

Chart III. Tracks of Centers of Cyclones, July 1950. (Inset) Change in Mean Pressure from Preceding Month



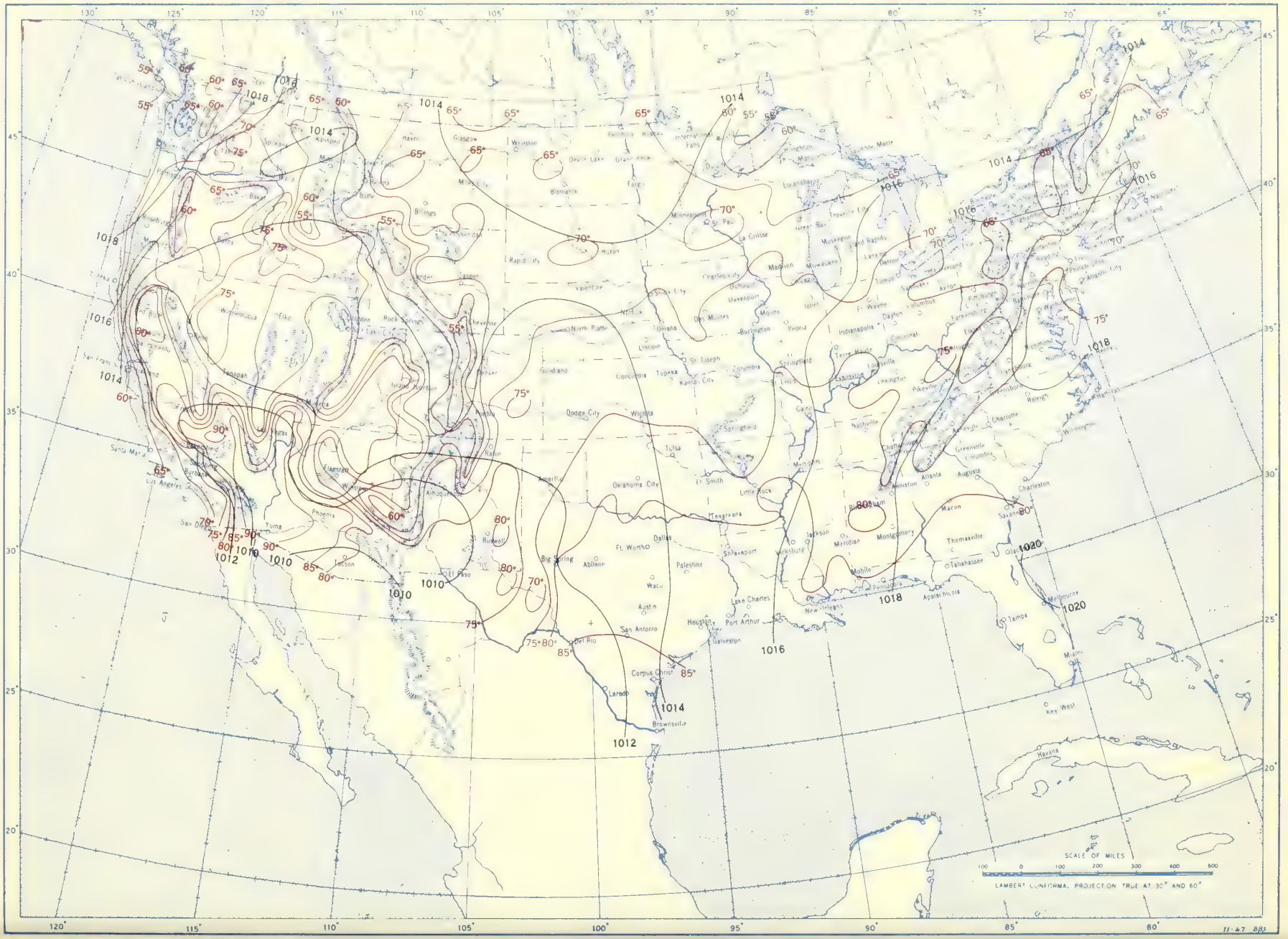
Circle indicates position of cyclone at 7:30 a. m. (75th meridian time) Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, July 1950

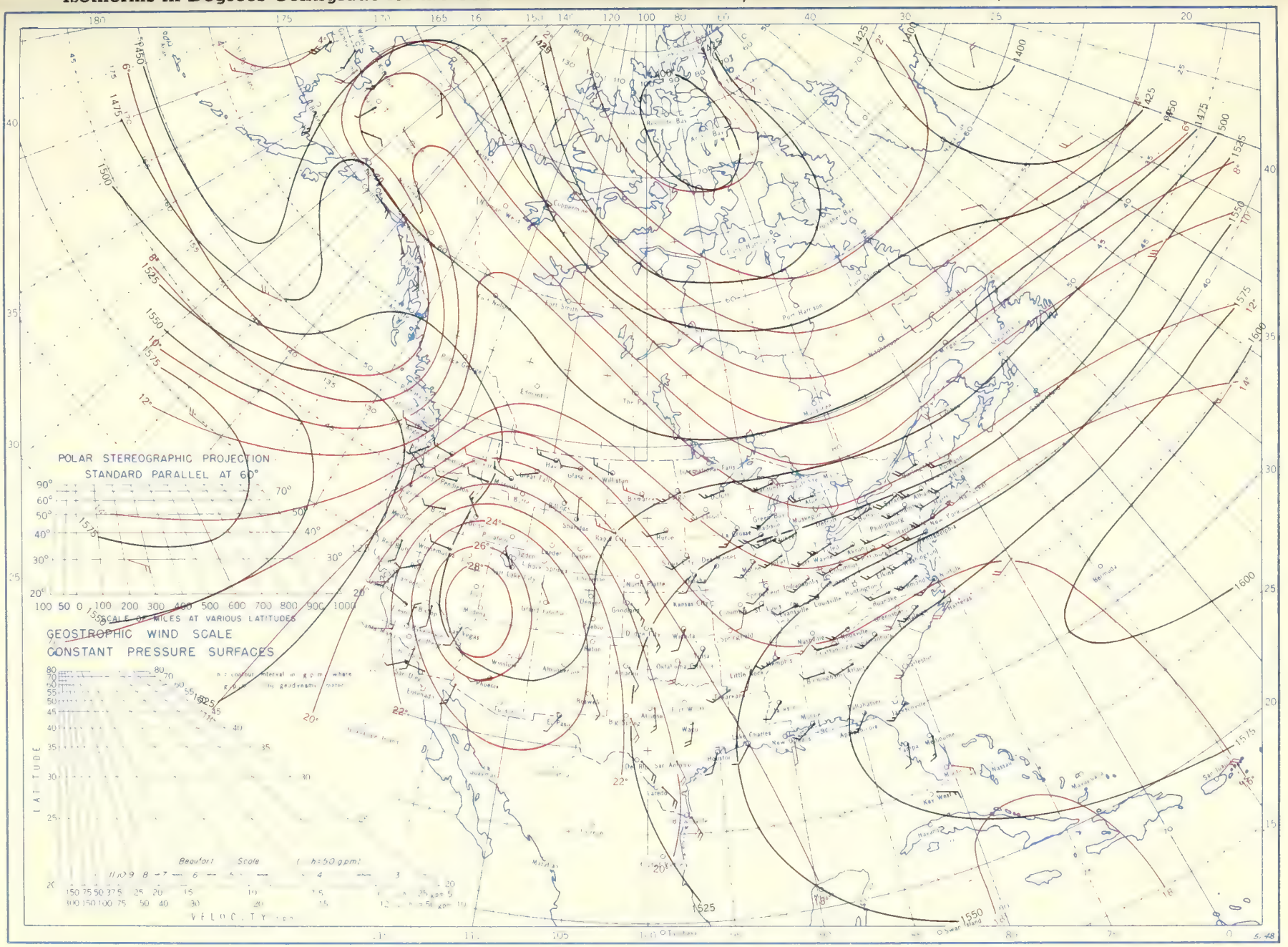



Scale of Shades
0 to 1 inch
1 to 2 inches
2 to 4 inches
4 to 6 inches
Over 6 inches

Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (F.) at Surface, July 1950

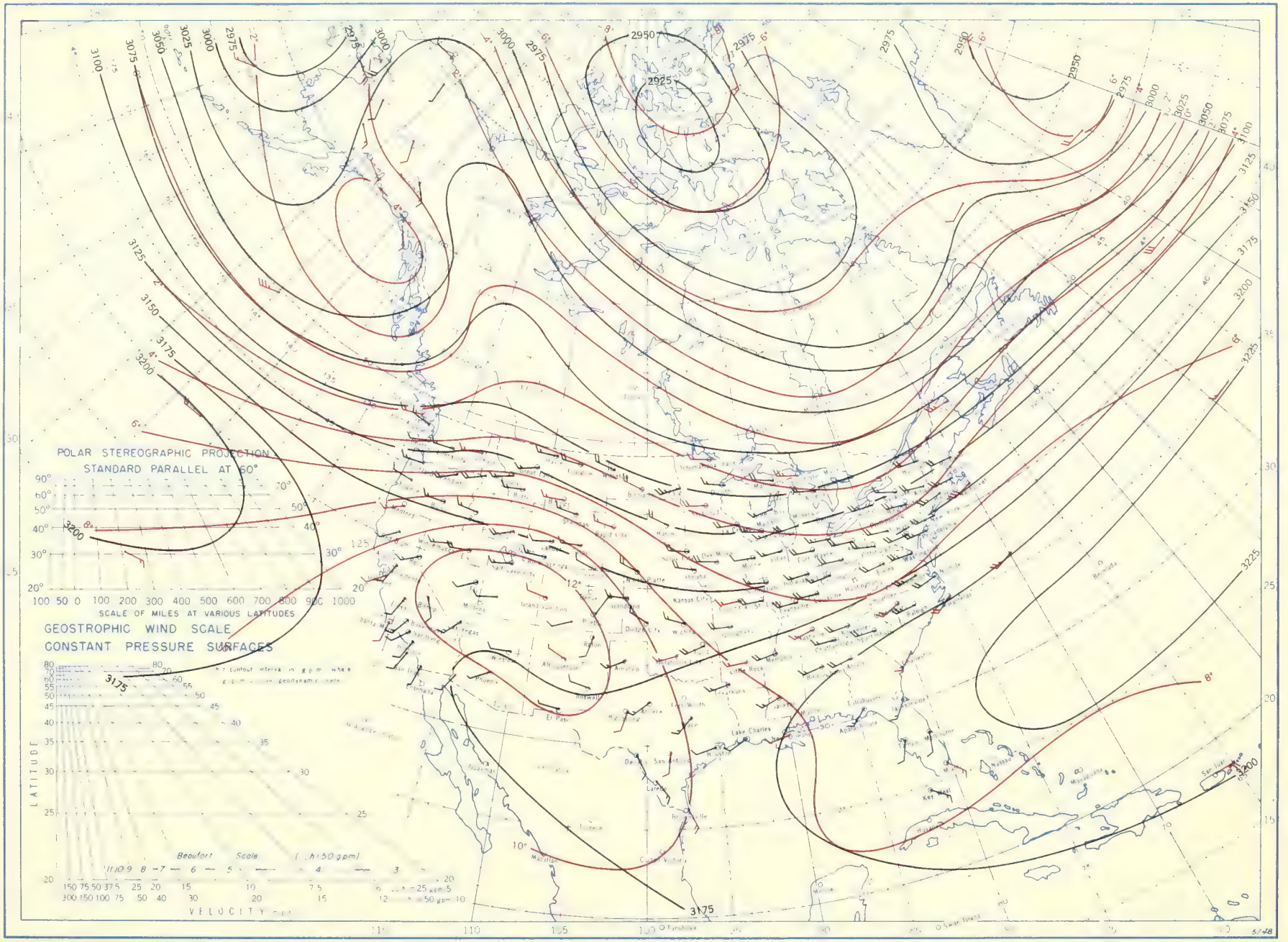


Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m. s. l.)



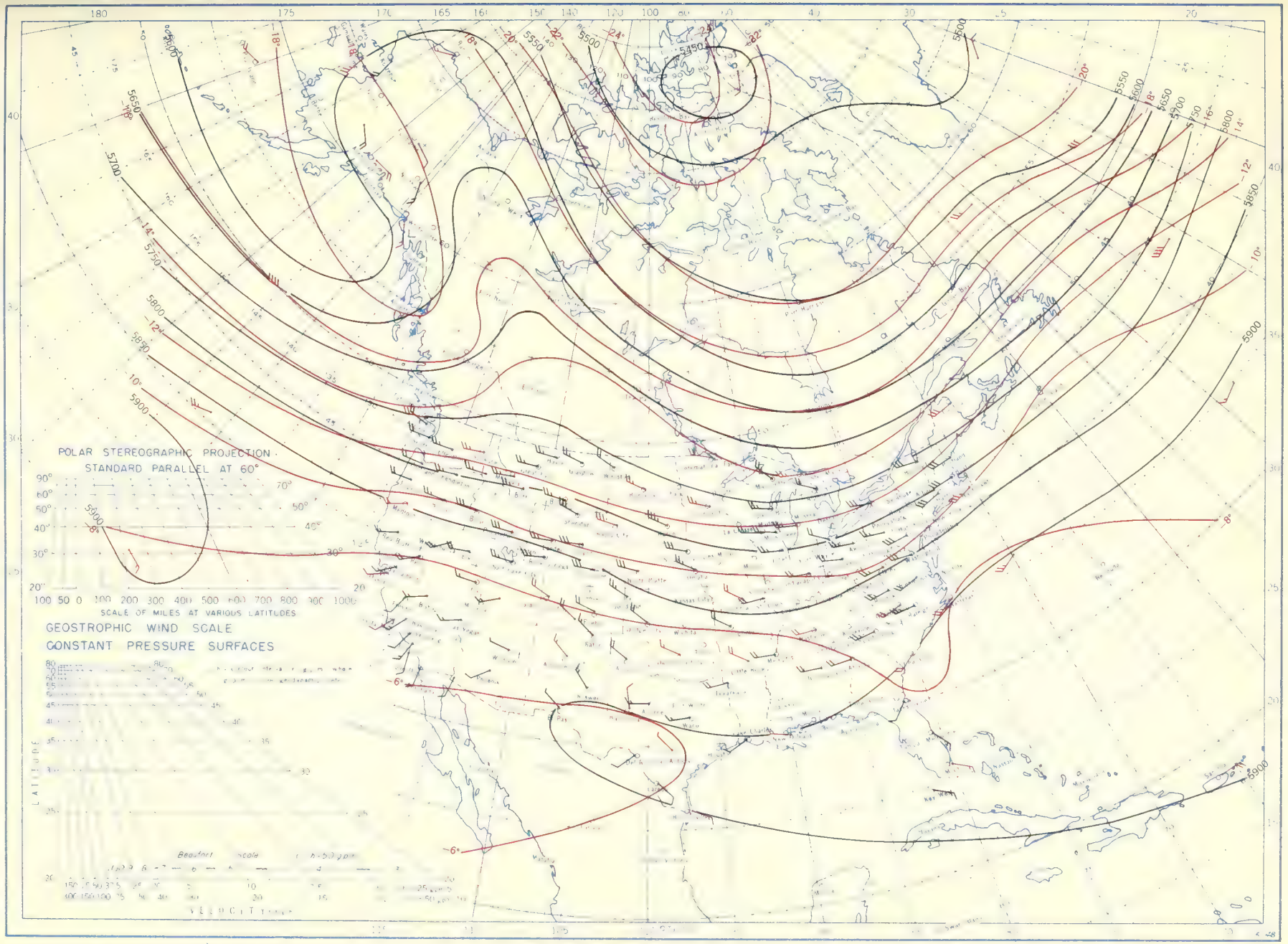
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart IX, July 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)



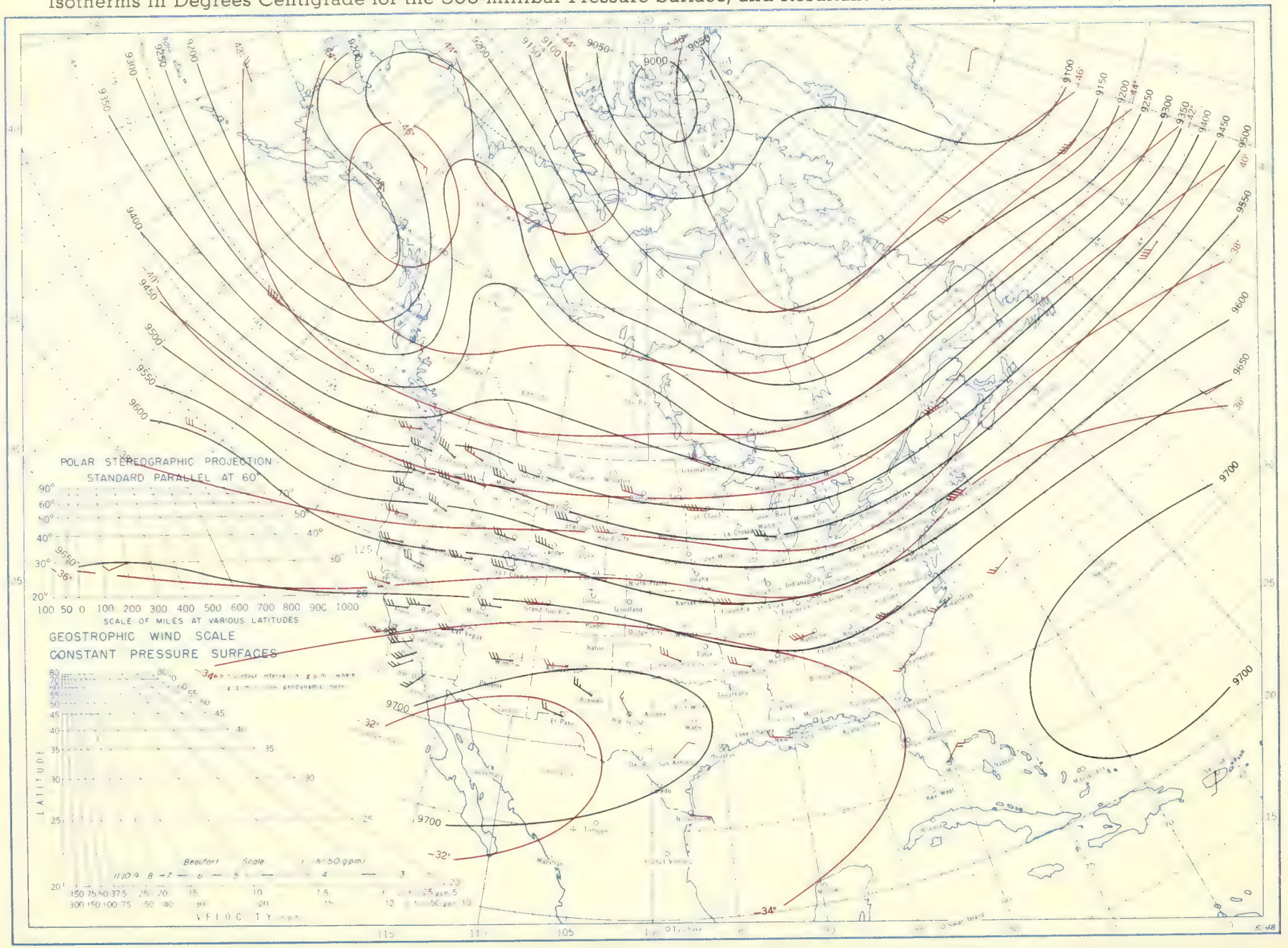
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on [illegible]

Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, July 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; [illegible] based on rawins taken at 0300 G. C. T.

U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

AUGUST 1950
Volume I No. 8



WASHINGTON: 1950

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CHARTS I-XI

NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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. S. DEPARTMENT OF COMMERCE,
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA
NATIONAL SUMMARY

olume I No. 8

AUGUST 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

This was the coolest August of record for the untry as a whole. The weighted United States erage for the month was 70.2°, or 2.6° below the -year mean. The previous coolest August was in 27 when the U.S. average was 70.3°. In contrast, e highest average temperature of record for gust was 75.4° in 1937, which is 5.2° warmer than gust 1950.

Chart I in the back of this publication shows at the month averaged cooler than usual over actically the entire portion of the country from e Rocky Mountains to the Atlantic Coast, with e minus departures exceeding 4° in Kansas, ssouri, and adjacent areas. Temperatures were mewhat above normal in northeastern districts, so from extreme southern Texas eastward over the mediate Gulf Coast and Florida, in central and uthern New Mexico, and from Idaho, western Utah, d Arizona to the Pacific Coast. The departures re 2° to about 4° above normal in most of Wash- gton, Oregon, northern California, parts of vada, and in south-central New Mexico. The ghest temperature in the United States for the nth was 124° at Cow Creek, Death Valley, Calif. the 19th, and the lowest 20° at Bondurant, Wyo., the 17th and Pearl, Colo., on the 18th.

The August 1950 average precipitation for the ited States was 2.54 inches, or only 0.04 inch ss than the 58-year mean. In spite of this ar-normal average for the country as a whole, e State average monthly values ranged from 2.05 ches below normal in the Carolinas to 3.28 inches ove normal in Arkansas. Totals at individual ations ranged from none in much of the far uthwest to 15.96 inches at Dama, Fla., 15.65 ches at Sheridan, Ark., and 15.25 inches at . Mitchell, N.C. Precipitation for the month s light or lacking in the middle and most southern rtions of the far West, while they exceeded 4 ches in a large south-central area that extended om southern Nebraska, extreme eastern Colorado, d northwestern Texas eastward to the lower Ap- lachians and thence southward over the East Gulf tates, with over 8 inches in parts of Kansas, ssouri, Arkansas, western Tennessee, northern ssissippi, northwestern and southern Florida, d southeastern Oklahoma. Amounts also exceeded inches on the Carolina coast, in most of the far rtheast, and on the Washington coast. See Table I d Chart V.

Temperatures averaged below normal over practi- lly the entire country during the first week, with nus departures exceeding 6° in the Midwest and eat Basin of the far West. Although cooler than rmal, the second week was generally about 3° warmer an the first with slight plus departures at most ations along the New England coast, in the uthern Border Region, the extreme Northwest, and a few stations near the North-Central Border. e third week was cool throughout the East with nus departures ranging up to 9° or more in north- central regions, but was unseasonably warm west of the Continental Divide, with plus departures exceeding 9° in central Oregon and Washington and northern California. Except in central areas where cooler than normal weather continued, the remainder of the month was 3° to 6° warmer than normal and was the warmest period of the month in New England.

Cool periods due to Polar air intrusions occurred at intervals throughout the month. During the second week the temperature fell to 38° at International Falls, Minn. on the 11th, 30° at Grand Marais, Mich. on the 12th, 34° at Phillipsburg, Pa. on the 13th, and into the 40's as far south as Virginia on the 13th and 14th. An early season frost damaged gardens in the Land O' Lakes, Wis. area on the 11th.

But the coolest period of the month and one of the coolest on record for so early in the season occurred in north-central areas August 18-21, with record-low August temperatures occurring at many stations on the 20th and 21st. A few of the stations recording minima that equaled or exceeded the lowest of record for August were Burlington, Iowa; St. Joseph, Mo.; Des Moines, Iowa; St. Cloud, Minn.; Sioux Falls, S. Dak.; Sioux City, Iowa; and Madison, Wis. on the 21st; and St. Louis, Mo.; Chicago, Ill.; and Terre Haute, Ind. on the 20th. A new August low of 22° for the State of Wisconsin was recorded at Coddington on the 21st, while 30° at Britt and Sibley, Iowa on the 20th equaled the previous August low for that State. Attesting further to this abnormal August cold in this area was the fact that maxima at most stations were the lowest in many years.

In central and a few eastern areas, where most of the month's precipitation fell, light to heavy showers were well distributed through the month and occurred with a greater than normal frequency as indicated by Oklahoma's average of 9 days with measurable rain compared to a normal frequency of 6 and Kansas' record of measurable rain every day somewhere in the State.

In the Southwest, however, showers of normal frequency were very light and Arizona, New Mexico, and Utah recorded their second driest August on record. Rainfall was much below normal in Texas coastal areas and southern Louisiana. The first 2 or 3 weeks were very dry in much of the extreme Southeast, but good rains accompanying the hurricane at the end of the month fell in Mississippi, Alabama, and Georgia. Precipitation was much below normal in coastal areas of New England until the week end of the 19th and 20th.

The dry, warm weather created a high fire hazard in many areas of the far West and during the third week 100 square miles were burned over in San Diego County, California, destroying timber and many homes in Cuyamaca Park and Cleveland National Forest.

Destruction of property and loss of life by severe storms were not unusual during August. Tornadoes caused no deaths and only 7 injuries, and total property loss was less than one-half million

dollars. The greatest loss of life resulted from electrical storms. The most destructive storm of the month was the hurricane on the 30th which caused over $2,000,000 damage in central Gulf areas on the afternoon of the 5th. Hailstones that were reported to have ranged in size from chicken eggs to baseballs fell 14 miles south of Sedgewick, Colo. on the 7th. A dust devil was reported to have caused $1,000 damage to a garage in Fort Wayne, Ind. Dust devils are of common occurrence during hot weather, but property losses due to these phenomena are rare.

Much fair, sunny weather favored farm activities, although they were interrupted from one to three days by showers in the central interior during the first, second, and fourth weeks. Much of the month was too cool in the north-central interior for warm weather crops, particularly corn, soybeans, and tomatoes, and most crops in this region were still about 2 weeks behind normal development at the end of the month. Moisture was ample for corn and cotton throughout the month.

Droughty conditions that had developed in sections of the northeastern quarter of the country, particularly in an area extending inland 50 miles along the New England coast where a 5 months rainfall deficiency of 50 percent or more had parched crops and created a serious water shortage, were completely relieved by heavy rains on the 19th and 20th. The need for more rain in southern Texas and much of the far West increased during the month and at the end were needed badly in the California-Great Basin area to reduce the fire hazard and relieve droughty conditions.

During the cold period in extreme north-central areas from about the 18th to the 22d, frost caused considerable crop damage, particularly in North Dakota, northern Wisconsin, north-central and central Minnesota and to some extent as far south as northern Iowa. Corn was the principle crop affected, but soybeans in Minnesota and wheat in North Dakota also suffered some damage.

By the end of the month harvesting of small grains was well under way along the Northern Border. Winter wheat harvest was only two-fifths completed in Montana, where damp weather had caused some delay. In the Main Wheat Belt of the central plains plowing and most seedbed preparation was finished, soil and moisture conditions were excellent, and winter wheat seeding had begun in western Nebraska.

In Iowa corn was 3 weeks later than usual, with estimates that 66 percent should mature before normal frost date. Cotton was very good in the Southwest but prospects were diminished by weevil in most other sections, especially Oklahoma, Arkansas, Tennessee, and North Carolina. The weather generally favored miscellaneous crops. A large crop of soybeans and cranberries was in prospect. Grain sorghums and peanuts were in very good condition, but there was some apprehension about the former crop maturing before frost. The prospects for truck, apple, and sugarbeet crops were promising. Pastures, however, were dry in much of the West and needed rain locally in the East.

CONDENSED CLIMATOLOGICAL SUMMARY

Table I

AUGUST 19

Section	Temperature							Precipitation						
			Monthly extremes							Monthly extremes				
	Average	Departure from normal	Station	Highest	Date	Station	Lowest	Date	Average	Departure from normal	Station	Greatest	Station	Least
	°F	°F		°F			°F		In.	In.		In.		
Alabama	77.[illegible]	-1.9	Gulsalla	106	12	Talladega	46	23	5.18	+0.45	Hodges	12.05	Sylacauga	[illegible]
Arizona	77.0	-1.1	2 Stations	118	31	Maverick	32	†21	.87	-1.46	Bright Angel R.S.	3.13	3 Stations	0
Arkansas	75.6	-1.1	Marianna 5N	102	16	Batesville L.S.	44	20	6.87	+3.28	Sheridan	15.65	Nashville	[illegible]
California	75.2	-.4	Cow Creek	124	19	Boca	25	9	.05	-.12	Ft. Jones	1.74	497 Stations	0
Colorado	63.4	-2.4	Eversell Ranch	103	24	Pearl	20	18	1.10	-.83	Idalia	7.24	2 Stations	0
Florida	81.3	-.1	Monticello	100	23	2 Stations	59	†7	6.32	-.78	Dania 5W	15.96	do	.5
Georgia	78.2	-1.6	4 Stations	100	14	Blairsville Exp. Sta.	48	7	4.01	-1.30	Tray Mountain	9.72	Milledgeville	6
Idaho	66.3	-.3	Grand View	105	18	Three Creek	23	6	.52	-.06	Sun Valley	1.97	2 Stations	0
Illinois	70.4	-4.2	Ottawa	96	†16	3 Stations	38	†20	3.63	+.27	East St. Louis	11.74	Ottawa	7
Indiana	70.5	-3.2	2 Stations	96	16	LaPorte	38	21	3.47	+.15	Tell City Power Plant	10.75	South Bend Apt.	2
Iowa	67.7	-4.9	do	95	†9	2 Stations	30	20	2.39	-1.37	Council Bluffs	9.04	Emmetsburg	6
Kansas	71.9	-6.4	do	100	†12	Burr Oak	37	20	5.88	+2.77	Jetmore 15NW	12.22	Oberlin	5
Kentucky	71.9	-3.9	do	93	18	Mammoth Cave	37	4	4.78	+1.06	Murray	10.77	McKinneysburg	9
Louisiana	80.9	-.9	Robeline	103	5	Chatham	56	21	3.63	-1.23	Bastrop	9.32	Hackberry	1
Maryland-Delaware	72.7	-.8	3 Stations	97	11	Oakland	36	14	3.46	-1.03	Riverdale	8.31	Great Falls	6
Michigan	63.4	-3.7	Ionia St. Hosp.	97	8	5 Stations	29	†18	2.61	-.32	Onaway Prsqu. Isle	5.68	Dowagiac 2E	4
Minnesota	66.[illegible]	-3.4	Madaca	102	16	Moose Lake 1SE	30	20	1.82	-1.46	Little Fork R.S.	5.19	Ft. Ripley	0
Mississippi	78.4	-2.3	3 Stations	100	†15	Duck Hill	53	7	5.24	+1.09	Bruce	11.50	Natchez	6
Missouri	71.2	-5.3	Doniphan	98	15	Albany	37	20	6.72	+2.94	Granby	14.86	Hannibal Wtr. Wks.	0
Montana	63.3	-2.4	Ekalaka	101	3	Circle 7N	23	19	1.30	+.19	Galata 13S	3.90	Polaris	6
Nebraska	69.[illegible]	-4.0	Seward 19S	99	8	2 Stations	33	†20	3.69	+1.01	Fairbury	8.72	Lyman	T
Nevada	70.6	-.9	Overton	113	†16	Wilkins	23	6	.10	-.40	Owyhee	.82	18 Stations	0
New England	66.[illegible]	-.8	2 Stations	94	11	Lac Frontiere	29	7	4.39	-.67	Searsburg Mt., Vt.	9.66	New Bedford, Mass.	6
New Jersey	71.3	-.7	Hammonton	96	29	Charlotteburg	39	22	4.97	+.27	Trenton No. 2	9.14	Clayton Phillipsburg Br	8
New Mexico	70.5	-1.2	Jal	106	23	Selser Ranch	24	19	1.08	-1.30	Chacon	1.18	4 Stations	0
New York	67.2	-.6	Penn Yan	96	28	2 Stations	33	†13	4.67	+.97	Fort Plain	9.34	Hammondsport	2
North Carolina	74.5	-1.4	2 Stations	98	3	do	40	7	3.47	-2.04	Mount Mitchell	15.25	Lake Michie	3
North Dakota	64.1	-2.9	Mandan Fd. Lincoln	97	6	do	29	†19	1.49	-.58	Fairfield	5.73	McLeod	0
Ohio	69.5	-2.2	4 Stations	96	17	do	36	21	2.88	-.48	West Manchester	7.73	Coshocton	8
Oklahoma	76.4	-5.5	2 Stations	104	†14	South Grand Lake	41	24	4.84	+1.92	Pontotoc	12.20	Braggs	0
Oregon	67.1	+1.5	The Dalles	108	21	Seneca	25	6	.44	.00	Willamette S.L.	2.64	10 Stations	0
Pennsylvania	68.4	-.4	Newell	98	28	Donegal	32	21	3.62	-.51	George School	8.25	Gouldsboro	9
South Carolina	77.3	-1.6	Chester	100	3	4 Stations	52	†6	3.68	-2.05	Moncks Corner	7.12	Crescent	0
South Dakota	67.6	-3.5	Highmore 1W	104	16	Hardy R.S.	28	20	2.24	+.13	McIntosh	6.18	Cottonwood 3E	0
Tennessee	73.1	-3.6	2 Stations	95	†14	Gatlinburg 2SW	40	7	5.89	+1.89	Erin	11.36	2 Stations	3
Texas	80.5	-2.3	do	108	15	Follette	47	20	2.36	-.01	Gainesville	11.46	6 Stations	0
Utah	69.0	-.9	Zion N.P.	110	31	East Portal	28	29	.22	-.90	Cedar Breaks N.M.	1.74	15 Stations	0
Virginia	72.6	-1.4	Newport News	98	2	2 Stations	41	†4	3.68	-.79	Langley Air Force Base	9.40	Halifax	6
Washington	66.9	+.3	Othello 5E	107	18	Bumping Lake	24	1	1.02	+.31	Quinault R.S.	7.77	12 Stations	0
West Virginia	69.8	-2.0	4 Stations	95	†17	Pickens No. 1	33	†4	3.16	-.92	Clay No. 1	6.58	Ripley	5
Wisconsin	63.4	-1.3	3 Stations	98	†16	Coddington Exp. Farm	22	20	2.69	-.75	El Dorado 1SE	6.33	Spooner Exp. Farm	6
Wyoming	62.3	-2.0	Dillinger	99	†3	Bondurant	20	17	.57	-.57	Rockypoint 2SW	2.61	3 Stations	0
Puerto Rico	78.5	-.2	Ponce, P.R.	99	13	Guineo Reservoir	57	29	7.90	+.67	Rio Blanco (1800 ft.)	17.04	Cayey	4
Alaska (April)	24.5	+1.5	Cape Decision	65	16	Umiat WB	-37	1	1.19	+.10	Latouche	18.68	2 Stations	
Alaska (May)	38.7	.0	Manley Hot Springs	74	30	Candle	-15	2	1.46	+.10	Latouche	22.92	Gulkana CAA	
Hawaii (July)	73.9	-1.1	Puunene AP	94	27	Haleakala R.S.	39	30	5.32	-.04	Kukui	48.00	16 Stations	00

Other dates also.

CLIMATOLOGICAL DATA

tate and station	Elevation (ground)	Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Day	Year	Lowest	Day	Year	No. of days Max. 90° F. or above	No. of days Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation in inches	Departure from normal	Snow, sleet, ice pellets	No. of days	Snow, sleet in inches	Depth on ground	Average velocity (miles per hour)	Prevailing direction	Fastest mile	Direction	Day	Year	Sunshine	Possible sunshine	Percent of possible sunshine
	Ft	*Mb*	*Mb*	°F	°F	°F	°F	°F			°F					°F	%	*In*	*In*		*In*	*In*	*In*	*M*								
ALABAMA																																
ariston	379	994.9	1016.5	68	53	76.0	----	92	13	51	4	7	1	7				3.51	--					5.1	--							
rmingham	610	991.5	1016.2	88	66	76.7	+1.8	97	17	54	22	15	0	27	13			5.49	+1.23					5.6								
rile CO	10	----	----	--	--	----	----	--	--	--	--	--	--	--	--			--	----					--	--	--	--	--	--	--	--	--
rile	211	1007.8	1015.7	91	71	80.7	---	98	1	54	22	22	0	76	72			8.61	----					5.1								
rtgomery CO	201	--	--	--	--	----	----	--	--	--	--	--	--	--	--			--	----					--	--	--	--	--	--	--	--	--
rtgomery	198	1008.5	1015.6	91	68	79.7	---	98	28	41	1	26	0	48	70			3.06	---					3.9								
ARIZONA																																
agstaff	6933	792.1	1018.9	70	39	62.2	--	89	31	39	6			0				1.47	---		1	10	71	T						4.9		
son CO	4494	851.3	1014.4	92	57	74.7	-	99	3	57	1			14	3			.46	---		.22	6	14	0						3.3		
enix CO	1117	----	--	--	--	89.9	+1.4	--										--	---		--	--	--	--			SW	4	--	--	--	--	--
enix	1108	971.2	1008.8	107	73	91.1	----	117	21	11				31	0			.17	----		.11		3	0.0		4.9						
scott	5021	849.8	1014.6	89	57	72.8		104	16	31				1				.11	----		.00	1	14	0.0		8.2				3.8	75	
son	2585	924.8	1010.4	98	71	84.7	+.5	108	16	1	1	15		6				.35	-1.48		.00			0.0		6.4				3.0	92	
slow	4860	853.7	1012.1	94	58	74.4	-.9	98	16	27	43	26		2				.34	-1.25		.00			0.0		7.8				3.4	--	
ca	203	1003.7	1008.6	110	77	93.6		116	21		3	21		27	0									0.0		8.9				.9	97	
ARKANSAS																																
t Smith	449	999.3	1015.5	87	68	77.4	-.2	99	15		7	31	0	17	28			4.1	-1.16		.00			0.0								
tle Rock	257	1003.1	1018.8	90	65	77.0	-2.8	95	3		1	4		26	80			7.59	+3.84		2.87			0.0				N	15	--		
rkarna	361	1002.4	1015.4	88	70	78.8	-4.4	94	15	54	23	3	0	19	74			5.6	+1.37		1.27	11	14	0.0								
CALIFORNIA																																
kersfield	489	994.2	1011.6	98	67	82.7	+.7	110	20	57				56	33				.01					0.0								
lamont CO	2589	924.5	1012.9	94	56	75.5	--	102	19	45	40	17		14				T	--		T			0.0		7.4						
shop	4108	874.0	1011.2	86	51	68.0		99	19	43								.62				1	1									
e Canyon	5280	841.9	1012.4	81	50	65.8	----	92	19	43	34	5		36										0.0		7.4						
bank	699	987.1	1013.5	87	58	72.0	---	98	18															0.0		6.0						
ka CO	43	1015.2	1017.6	72	45	57.3	+.3	79						0				.07	-.11		.00			0.0		5.5				7.1	39	
sno	331	1000.4	1011.5	97	62	79.3	.2	105	20	51	1			24	14			T	-.01					0.0		6.3						
. Angeles CO	312	----	----	--	--	70.9	.2	--											-.02													
. Angeles	99	1010.2	1013.8	72	59	65.9	---	84	3	44	41			0										0.0		5.1						
. Shasta CO	3543	893.1	1014.8	80	50	69.3	+2.9	96	20			14		13	0									0.0		5.6						
kland	3	1014.6	1014.8	76	54	65.3	-3.1	94	14	48	4			0	0			T	-.01					0.0		7.2						
d Bluff	341	999.0	1011.4	99	60	82.7	+3.0	112	20	47	48			28				.15						0.0		10.2						
ramento	25	1009.8	1012.0	94	57	75.4	-2.5	107	14	31	38			15										0.0		6.1						
dberg CO	1737	864.2	1012.9	87	49	75.3	---	98	18	40				4																		
Diego	19	1010.5	1013.5	74	62	68.2	---	84	5	48				0																		
Francisco CO	52	----	----	--	--	----	---	--	--	--	--	--	--	--	--			--	----					--	--	--	--	--	--	--	--	--
Francisco	1	1013.9	1014.5	72	52	62.2	-4.1	93						0										0.0								
ta Catalina	1568	957.6	1012.7	78	59	68.8	----	87	16	43				0																0	2.1	
ta Maria	231	1006.1	1014.8	79	42	61.6	---	98	19	49				0				.41	-----		.21			0.0		7.4						
COLORADO																																
amosa	7534	777.2	1020.0	78	41	59.6	--	96	31	34	27			0				1.6	---		.31	8	14										
lorado Springs	6175	814.8	1016.9	90	57	66.1	--	99	30	45	27			3				.84	----		.29	11											
nver	5221	839.8	1014.8	91	57	68.9	.4	97	31	47	30			1										0.0		7.7						
and Junction	4849	860.8	1013.3	96	57	73.7	-1.7	104	31	56	13			7	0						.00	1		0.0		10.2						
eblo	4709	859.1	1014.8	87	58	70.7	-2.0	98	24	48	13		0	2	0			.21			.07	2				6.1						
CONNECTICUT																																
dgeport	7	1016.9	1017.6	79	62	70.8	----	86						0				5.15	----		2.74	11				7.9					5.9	--	
rtford	15	1011.2	1017.3	90	60	69.9	-.6	96			42			0				4.16	-.13		2.71											
Haven	7	1013.2	--	--	--	--	--	--	--	--	--	--	--	--	--			--	+1.69		3.90									6.0	62	
DELAWARE																																
lmington	73	1013.9	1017.0	85	62	73.5	-	96	20	47	32			1	13			3.85	--		1.28											
FLORIDA																																
lachicola	13	1014.9		90	72	82.4	-.2	97						0				7.23	-.32		5.67			0.0				SE	31		3.9	71
tona Beach	14	1014.6	1016.3	90	74	82.2	---	96			71	7		0				3.88	-1.28		1.52			0.0								
rt Myers	15	1014.9	1015.4	91	75	82.0	-.4	94						0				5.93	-2.89		1.42			0.0								
cksonville	18	1015.6	1016.3	92	70	82.5	+.1	97			67	7		0				2.68	-3.13		1.40			0.0								
West CO	5	----	----	--	--	----	----	--	--	--	--	--	--	--	--			--	----		--	--	--	--	--	--	--	--	--	--	--	--
West	6	1013.3	1014.3	90	77	83.5	.7	94			74			0				.07	-.41		1.85	15										
eland CO	214	----	----	--	--	85.1	.6	--			72			--				.89	-3.89		.04			0.0							6.2	--	
bourne	22	1014.9	1016.1	89	73	81.3	-.2	96	1	62				0	0			2.93	-2.89		.04			0.0							5.7		
mi CO	6	----	----	--	--	----	----	--	--	--	--	--	--	--	--			--	----		--	--	--	--	--	--	--	--	--	--	--	--
mi	8	1014.2	1015.2	89	75	82.7	---	95		71	69	14		0				8.65	-----		.24	12		0.0								
mi Beach	--	----	----	--	--	----	----	--	--	--	--	--	--	--	--			8.45	---		.24			0.0								
ando	111	1011.9	1016.1	93	72	82.3	-.1	97	16	70	9			0	0			3.48	-3.38		.90			0.0		6.8						
sacola CAA APT	--	----	----	--	--	----	----	--	--	--	--	--	--	--	--			--	----		--	--	--	--	--	--	--	--	--	--	--	--
sacola CO	15	1013.-	1015.1	90	74	82.9	-.5	97		70				0				10.05	+2.03		7.37			0.0							4.9	
lahassee	64	1013.5	1015.8	93	71	81.1	-.7	98		67				0				10.63	+3.99		7.07			0.0								
mpa	24	1014.2	1015.5	91	73	81.9	-.1	97						0				8.04	-.14												5.9	
t Palm Beach	11	1014.2	1015.2	90	74	82.0	----	96						0				13.52	+7.18												6.3	
GEORGIA																																
bany	190	1009.5	1016.3	96	70	81.4	-.5	99	24					0				4.83	-.2		.5			0.0								
lanta	997	975.3	1016.3	87	67	76.2	-1.8	94						0				5.51	+.-		2.77			0.0								
gus	148	988.2	----	94	67	77.1	--	98						0							.69			0.0								
gusta	426	1011.9	1016.9	94	67	78.5	-1.9	98						0				1.82	-3.-		.17			0.0								
lumbus	382	1002.7	1016.5	95	67	78.5	---	96						0				5.77	---		2.64			0.0		5.7						
con	354	1003.1	1016.2	91	68	79.8	---	96						0				2.84	----		1.25			0.0		6.6				4.9		
con	637	993.9	1017.0	95	64	75.1	-2.8	98	1	50				0				6.42	+3.04		1.73			0.0								
vannah	58	1014.2	1016.4	90	72	80.0	+.1	98						0				6.01	-1.50		2.17			0.0								
ldosta	200	1008.1	1016.0	92	69	80.9	-.5	99						0				3.09	-3.-		1.20			0.0								
IDAHO																																
se	2842	919.0	1012.6	88	57	72.7	+1.7	101	22	48				0				.52	-.-		.00			0.0		10.3						
riston	1413	963.4	1013.9	90	57	73.4	----	100	17					0				.28	-----		.10			0.0		5.4						
catello	4444	864.2	1014.3	86	50	68.0	-.9	95						0				.09	-.41		.00			0.0		6.4						
ILLINOIS																																
ro CO	314	1003.4	1015.9	89	67	74.6	-4.2	99						0				6.81	+3.79		1.63			0.0								
cago	618	994.2	1016.7	86	70	70.0	-1.6	98						0				1.78	-1.24		.64			0.0		8.0					5.8	
liet	580	995.6	1017.0	91	56	68.7	-2.6	93						0				1.02	-2.-		.44			0.0		7.5					5.4	
line	589	995.3	1017.5	79	56	68.5	-3.2	96						0				1.87	-1.63		.-			0.0		6.7					6.3	
oria	659	995.3	1017.0	92	59	69.0	-4.1	99						0				1.67	-1.45		1.06			0.0		8.1					6.3	
ringfield	598	993.6	1016.8	79	59	69.2	-3.0	86						0				.-	-.36		1.30			0.0		6.6					6.9	
INDIANA																																
nsville	585	1001.7	1017.1	82	62	72.0	-3.0	93						0				2.22	+1.86		2.61			0.0								
rt Wayne	841	986.5	1017.3	86	53	69.2	-1.7	97						0				1.01	+.90		1.16			0.0								
dianapolis	796	987.8	1017.0	81	59	70.2	-2.2	92						0				1.-	-.-					0.0		6.7						

Data from airport unless otherwise specified. CO indicates data from city office.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity*	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)
	Ft	*Mb*	*Mb*	°F	°F	°F	°F	°F		°F				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	M. p. h.		M. p. h.			0— 3	4— 7	8— 10	0—10
South Bend	768	988.8	1016.6	80	58	69.2	-2.4	91	16	43	21	2	0	59	77	0.32	-3.16	0.20	6	3	0.0	0	9.2	SSW	--	---	--	8	12	11	5.5
Terre Haute	585	996.6	1017.3	82	59	70.4	-4.4	92	16	43	21	1	0	61	78	4.68	+1.43	3.72	7	4	0.0	0	4.9	SE	26	NE	31	--	--	--	5.5
IOWA																														
Burlington	605	991.5	1016.8	79	58	68.3	-5.7	88	16	41	20	0	0	61	82	2.44	-1.11	.98	7	5	0.0	0	8.2	S	23	NW	2	7	7	17	6.5
Charles City CO	1013	981.7	1014.6	77	57	66.9	-2.2	90	9	39	20	1	0	--	--	2.27	-1.21	2.06	6	2	T	T	5.0	---	20	SW	24	15	6	10	4.7
Davenport CO	579	995.3	------	79	61	69.7	-3.4	89	15	45	20	0	0	--	--	1.56	-1.93	.84	6	3	0.0	0	---	---	---	---	--	--	--	--	---
Des Moines CO	800	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	---	---	---	---	25	N	10	--	--	--	---
Des Moines	800	985.8	1016.8	78	59	68.4	-3.8	88	16	40	20	0	0	60	78	2.05	-1.47	.75	9	4	0.0	0	7.8	S	--	---	--	8	9	14	6.3
Dubuque	641	991.5	1016.6	78	59	68.5	-3.2	91	16	45	20	2	0	--	--	1.08	-2.16	.58	7	1	0.0	0	4.8	---	23	NW	10	--	--	--	6.3
Sioux City	1097	975.6	1016.0	80	57	68.5	-2.7	92	16	37	20	4	0	59	77	4.31	+1.18	1.99	11	10	0.0	0	8.2	ESE	32	NW	17	10	8	13	5.5
KANSAS																														
Concordia CO	1375	966.8	1015.9	81	62	71.6	-4.9	89	16	48	20	0	0	--	--	6.47	+3.56	1.69	13	9	0.0	0	5.8	---	23	NE	17	--	--	--	4.9
Dodge City	2594	928.9	1014.8	82	61	71.6	-6.1	92	4	47	20	2	0	61	76	4.87	+2.20	1.87	2	12	0.0	0	10.6	S	69	NW	29	9	16	6	4.9
Goodland	3645	890.6	1014.9	83	56	69.1	-5.2	91	4	47	20	5	0	57	73	4.09	+1.56	1.83	15	17	T	T	11.6	SE	37	WNW	13	8	15	8	5.3
Topeka	926	984.4	1016.0	82	62	71.7	----	90	16	45	20	1	0	64	80	5.87	-----	1.71	12	11	T	T	6.9	SE	38	NW	25	--	--	--	6.3
Wichita	1372	967.8	1015.2	82	64	72.8	-5.5	93	12	47	20	4	0	64	78	5.93	+2.80	1.39	12	12	T	T	10.2	SE	47	N	26	--	--	--	5.8
KENTUCKY																														
Lexington	979	982.1	1017.4	82	62	71.6	-2.9	90	1	49	21	2	0	62	77	2.70	-.75	.85	10	4	0.0	0	7.0	S	--	---	--	7	16	8	6.0
Louisville	485	999.7	1016.6	84	62	73.1	-3.0	92	16	49	22	3	0	63	75	3.02	-.40	1.09	9	5	0.0	0	4.8	E	40	W	1	8	14	9	6.1
LOUISIANA																														
Baton Rouge	64	1012.5	1015.3	91	71	80.6	-1.1	95	15	67	21	22	0	70	79	.96	-4.55	.49	5	13	0.0	0	4.3	E	--	---	--	--	--	--	4.7
Lake Charles	12	1013.5	1014.5	93	73	82.6	.7	97	18	66	21	29	0	72	83	2.73	-3.11	1.22	10	9	T	T	4.6	S	--	---	--	--	--	--	4.7
New Orleans CO	12	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	---	---	23	E	28	--	--	--	---
New Orleans	12	1013.9	1015.6	90	73	81.5	----	96	14	69	3	19	0	72	81	4.34	-----	1.00	15	18	0.0	0	5.8	NE	--	---	--	--	--	--	4.2
Shreveport	174	1006.1	1014.7	90	72	81.0	-1.8	97	25	67	9	20	0	71	79	4.11	+1.41	2.58	10	7	0.0	0	7.5	E	41	E	9	--	--	--	5.0
MAINE																														
Caribou	624	993.6	1016.6	73	50	61.4	-.1	84	9	41	13	0	0	53	77	4.23	+.94	1.48	14	2	0.0	0	10.3	SSW	28	WSW	10	6	10	15	6.4
Eastport	33	1013.5	1016.3	68	53	60.8	+.1	83	9	48	25	0	0	--	--	5.33	+2.33	2.42	10	8	0.0	0	---	---	29	E	19	6	14	11	6.3
Portland	61	1007.1	1016.8	77	54	65.7	+1.1	91	10	42	8	2	0	58	80	4.54	+1.40	1.43	8	5	0.0	0	7.3	S	29	NE	18	8	13	10	5.9
MARYLAND																														
Baltimore CO	14	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	---	---	29	N	11	--	--	--	---
Baltimore	146	1013.2	1017.7	84	64	74.1	----	93	29	54	13	6	0	63	72	2.66	-----	2.16	7	4	0.0	0	8.6	S	--	---	--	8	14	9	6.0
Frederick	294	------	------	87	63	74.5	----	95	1	47	13	8	0	--	--	3.58	-----	1.22	9	3	0.0	0	---	---	--	---	--	--	--	--	---
MASSACHUSETTS																														
Boston	12	1012.2	1016.9	79	63	70.9	+1.0	87	9	56	7	0	0	59	69	3.14	-.48	1.89	9	4	0.0	0	10.4	SW	28	SW	16	10	11	10	5.6
Nantucket	43	1016.3	1017.1	73	61	66.9	-.9	77	20	53	12	0	0	63	87	2.99	-.41	1.41	7	1	0.0	0	11.3	SW	37	N	20	8	10	13	6.0
Pittsfield	1153	------	------	76	54	64.8	-.5	83	27	42	22	0	0	--	--	3.45	-.68	.98	9	10	0.0	0	---	---	--	---	--	5	13	13	6.4
MICHIGAN																														
Alpena CO	587	994.6	1016.9	70	54	61.9	-2.2	83	24	41	22	0	0	--	--	3.72	+.86	1.33	13	6	0.0	0	9.1	---	26	NW	17	7	9	15	6.4
Detroit	619	990.5	1016.9	81	60	70.2	+1.0	96	17	47	21	3	0	57	70	1.51	-1.27	.92	8	3	0.0	0	7.3	N	28	NW	2	--	--	--	4.9
Escanaba CO	594	994.6	1016.9	68	51	59.6	-4.7	79	15	40	20	0	0	--	--	1.94	-1.25	.51	14	3	0.0	0	9.6	---	31	N	23	10	10	11	5.3
Grand Rapids	638	991.9	1016.8	77	57	66.9	-1.1	87	17	45	21	0	0	57	75	.90	-1.71	.52	7	6	0.0	0	8.1	E	26	W	1	--	--	--	5.8
Lansing	859	985.4	1017.3	78	56	67.0	-2.3	89	17	41	21	0	0	57	77	2.45	-.37	1.73	10	7	T	T	10.5	W	34	SW	1	--	--	--	5.0
Marquette CO	677	989.5	1017.3	68	50	58.9	-4.9	86	15	41	18	0	0	--	--	2.73	+.06	1.42	9	5	T	T	7.2	---	28	S	24	--	--	--	5.4
Muskegon	627	993.6	1016.7	75	55	65.2	-3.1	85	17	43	21	0	0	58	79	2.02	-.38	.65	12	6	0.0	0	7.5	SW	--	---	--	11	8	12	5.6
Sault Ste. Marie	721	994.2	1017.1	69	47	57.6	-3.2	81	7	32	22	0	1	50	81	2.63	-.07	.92	12	5	0.0	0	7.4	NW	26	NW	19	--	--	--	6.3
Ypsilanti	722	988.8	1016.9	81	58	69.6	----	94	17	43	21	2	0	56	71	2.70	-----	1.97	9	5	0.0	0	8.6	SW	--	---	--	12	10	9	4.8
MINNESOTA																														
Duluth	1128	965.8	1017.2	70	47	58.3	----	88	16	38	20	0	0	49	77	3.17	-----	1.57	6	4	T	T	7.9	E	36	W	8	--	--	--	5.0
Internat'l Falls	1179	975.6	1016.5	71	45	57.9	-6.3	85	8	32	25	0	1	50	77	3.43	+.30	1.85	11	6	0	0	---	---	--	---	--	9	9	13	5.0
Minneapolis	830	983.1	1016.0	78	57	67.7	-2.2	96	16	40	20	4	0	53	65	1.84	-1.28	1.11	5	2	T	T	10.4	ENE	37	S	24	--	--	--	5.2
Rochester	1014	980.0	1016.9	77	54	65.7	-3.2	90	15	35	20	3	0	56	72	1.41	-2.04	.71	6	4	0.0	0	8.1	SE	--	---	--	6	13	12	6.1
St. Cloud	1034	979.0	1016.4	78	51	64.4	-4.4	100	16	34	20	4	0	51	66	.46	-2.72	.26	5	3	0.0	0	7.6	E	--	---	--	9	12	10	5.1
St. Paul	703	990.2	1016.2	78	57	67.5	-1.9	97	16	39	20	4	0	54	66	1.86	-1.15	1.26	6	3	0.0	0	9.5	SE	34	SSW	24	12	11	8	5.1
MISSISSIPPI																														
Jackson	315	1004.1	1015.7	91	69	80.0	-1.3	96	15	63	21	20	0	68	73	3.18	-.70	1.69	10	9	0.0	0	5.5	NNW	25	W	18	13	12	6	4.0
Meridian	294	1002.7	1015.8	90	68	79.1	+.5	95	13	61	7	22	0	68	77	3.86	-.68	1.34	12	12	0.0	0	4.6	NW	--	---	--	11	11	9	5.1
Vicksburg	234	1010.5	1015.4	88	71	79.5	-1.3	94	15	64	21	13	0	71	80	2.87	-.59	.98	9	9	0.0	0	4.8	NW	26	SW	9	7	17	7	5.2
MISSOURI																														
Columbia CO	733	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	---	---	---	---	---	---	---	---	---
Columbia	733	988.2	1016.2	79	61	70.0	-5.6	86	10	46	20	0	0	63	85	6.69	+3.09	1.32	11	10	0.0	0	6.9	S	25	NW	1	--	--	--	6.2
Kansas City	741	989.2	1015.8	80	64	72.1	-4.5	89	16	49	20	0	0	63	77	5.77	+2.23	1.60	11	8	0.0	0	6.5	S	33	NW	15	--	--	--	6.2
St. Joseph	809	981.4	1015.7	82	61	71.5	-5.0	92	16	44	20	1	0	62	80	5.73	+1.90	1.93	10	10	0.0	0	7.3	S	27	SW	28	9	10	12	5.3
St. Louis CO	465	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	---	---	30	S	15	--	--	--	6.6
St. Louis	465	995.9	1016.1	82	63	72.3	-4.1	93	10	50	21	1	0	62	76	3.72	+.70	1.64	12	5	0.0	0	5.6	S	--	---	--	--	--	--	6.1
Springfield	1265	969.5	1016.4	80	61	70.5	-4.5	91	14	46	21	2	0	63	84	5.91	+1.82	3.07	14	15	0.0	0	8.4	SSE	42	NW	27	7	5	19	6.6
MONTANA																														
Billings	3568	892.7	1014.7	82	53	67.8	-2.8	94	31	44	20	6	0	44	48	.68	-----	.42	6	7	0.0	0	9.6	SSW	47	NW	23	15	10	6	4.7
Butte	5553	833.1	1018.7	77	41	58.9	-2.0	86	30	35	26	0	0	39	54	.95	+.05	.72	7	11	T	0	8.3	S	--	---	--	11	10	10	5.1
Glasgow CO	2090	941.8	1015.2	87	50	65.4	-3.2	95	3	33	19	6	0	49	61	2.27	+1.04	1.67	5	2	T	0	---	---	---	---	--	10	12	9	5.1
Great Falls	3663	890.3	1015.6	77	52	64.5	-2.6	89	2	42	9	0	0	45	53	2.94	+1.77	1.72	8	7	T	0	9.7	SW	56	W	9	10	12	9	5.3
Havre CO	2488	927.5	1015.6	80	52	65.7	+.3	89	27	37	19	0	0	--	--	1.15	-.07	.41	9	4	0.0	0	7.1	---	38	NW	27	13	10	8	4.2
Helena	3893	876.1	1016.2	80	49	64.3	-.3	90	2	41	19	1	0	45	55	1.35	+.58	.89	7	9	T	T	6.0	W	42	W	23	13	10	8	4.6
Kalispell	2965	913.0	1014.5	79	48	63.7	----	87	31	40	4	0	0	47	--	1.24	-----	.60	10	11	T	0	7.1	NNE	--	---	--	12	10	9	4.1
Miles City	2629	931.9	1015.1	83	53	68.1	----	98	3	40	19	9	0	47	--	.48	-----	.18	5	3	0.0	0	10.0	NW	--	---	--	12	14	5	4.1
Missoula	3201	903.2	1015.9	82	48	65.1	+.9	90	30	43	27	4	0	46	56	1.62	+.87	1.18	9	10	T	T	5.2	SE	32	N	4	11	9	11	4.2
NEBRASKA																														
Grand Island	1841	952.3	1014.9	82	58	70.0	----	93	16	40	20	3	0	59	74	2.14	-----	.73	11	10	0.0	0	10.7	S	--	---	--	15	5	11	4.1
Lincoln CO	1184	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	---	---	33	N	17	--	--	--	---
Lincoln	1180	973.6	1015.7	81	60	70.3	-3.2	93	16	39	20	2	0	61	77	4.13	+.56	1.28	11	8	0.0	0	8.2	NE	--	---	--	--	--	--	4.1
Norfolk	1554	961.1	1015.9	80	58	69.1	-4.0	92	16	40	20	3	0	59	76	4.55	+1.46	1.53	12	12	0.0	0	9.1	SSE	--	---	--	--	--	--	4.1
North Platte	2783	917.7	1014.7	81	56	68.3	-2.5	92	16	40	20	1	0	58	76	7.16	+4.77	4.08	14	18	2.0	2	8.9	SE	44	N	11	13	8	10	4.8
Omaha	978	977.0	1016.1	80	60	70.1	-3.1	91	16	43	20	1	0	60	75	6.00	+2.95	2.48	11	10	T	T	8.4	SSE	38	N	17	--	--	--	5.2
Scottsbluff	3950	881.1	1014.4	86	53	69.2	-2.3	95	18	44	20	11	0	49	60	.57	-.85	.22	5	5	T	0	7.7	E	--	---	--	16	10	5	3.1
Valentine	2581	925.2	1015.6	82	56	68.6	-3.1	93	8	40	20	4	0	--	--	3.38	+1.21	.81	9	12	T	0	7.7	---	54	NW	6	11	15	5	4.8
NEVADA																														
Elko	5075	846.6	1014.8	89	44	66.6	----	96	31	34	6	16	0	35	34	.05	-----	.04	2	4	0.0	0	6.1	W	--	---	--	24	5	2	2.1
Ely	6257	812.1	1015.9	85	43	63.8	+2.5	92	31	32	6	6	1	--	--	.06	-1.05	.06	1	5	T	T	11.4	---	56	S	4	11	20	0	3.8
Las Vegas	2162	935.3	1009.1	103	71	87.3	+2.5	111	31	63	7	31	0	33	16	.29	-.24	.29	1	2	0.0	0	6.7	WSW	--	---	--	28	3	0	1.4

Data from airport unless otherwise specified. CO indicates data from city office.

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No of days Max. 90° F or above	Temperature: No of days Min. 32° F. or below	Temperature: Average dew point	Average relative humidity*	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days 01 inch or more	Precipitation: No. of days With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset): 0–10	Possible sunshine
	Ft.	*Mb.*	*Mb.*	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M p. h.*			0–3	4–7	8–10	0–10	%
Reno	4404	863.2	1014.1	91	46	68.1	+2.4	99	29	38	5	18	0	39	39	.07	-.15	.07	1	4	0.0	0	5.4	W	36	W	18	23	7	1	2.2	86
Winnemucca	4299	868.6	1013.4	91	48	69.4	+.1	100	18	34	6	18	0	31	26	.16	-.04	.14	2	2	0.0	0	8.1	---	34	S	2	14	15	2	3.8	92
NEW HAMPSHIRE																																
Concord	339	1006.1	1017.0	80	54	67.1	+1.6	89	18	42	72	0	0	56	76	5.37	+1.83	2.71	7	8	0.0	0	4.2	NW	42	SW	29	6	14	11	6.4	57
Mt. Washington	6262	811.0	1022.4	54	43	48.3	+.3	64	18	33	11	0	0	--	--	5.72	-.43	1.55	15	5	1	T	19.9	W	--	---	--	4	9	18	7.1	33
NEW JERSEY																																
Atlantic City CO	8	1014.9	1016.6	77	67	72.2	-.3	85	10	58	8	0	0	--	--	3.77	-.72	1.75	7	4	0.0	0	---	---	35	NE	6	11	9	11	5.5	73
Newark	11	1015.6	1017.0	82	64	72.8	-.2	92	29	54	22	3	0	62	72	6.05	+1.13	2.65	11	7	0.0	0	7.6	SW	28	NNW	20	6	10	15	6.6	--
Trenton CO	56	1010.2	1016.9	81	64	72.4	-.6	90	29	55	22	1	0	--	--	6.65	+1.90	3.73	9	8	0.0	0	7.4	---	32	NW	29	6	11	14	6.6	65
NEW MEXICO																																
Albuquerque	5310	850.7	1011.9	90	62	76.3	+2.4	95	31	56	27	19	0	46	39	.08	-1.16	.03	4	8	0.0	0	9.2	SE	50	SE	10	14	13	4	3.9	79
Clayton	4969	850.7	1015.3	84	55	69.2	-3.5	94	24	46	18	4	0	55	68	1.29	-.84	.32	12	16	T	0	11.5	W	--	---	--	14	13	4	4.0	--
Raton	6379	808.7	1015.6	82	48	65.3	----	90	23	41	27	2	0	48	60	1.23	-----	.44	16	24	T	0	6.9	E	--	---	--	8	12	11	5.6	--
Roswell	3611	892.7	1012.8	94	62	78.0	+1.4	102	23	55	21	27	0	52	46	.74	-1.41	.57	4	11	0.0	0	7.9	SSE	47	NE	17	19	11	1	3.0	74
NEW YORK																																
Albany	277	1012.2	1016.4	80	57	68.5	-.5	88	9	44	22	0	0	54	76	7.33	+4.24	4.08	14	6	T	T	7.1	S	38	S	16	9	9	13	6.0	59
Bear Mountain	1300	------	------	76	61	68.1	----	86	9	52	22	0	0	--	--	5.94	-----	1.50	11	6	0.0	0	---	---	--	---	--	6	14	11	6.4	--
Binghamton CO	858	------	------	--	--	----	--	--	--	--	--	--	--	----	-----	----	-----	----	--	--	---	---	---	---	---	---	---	---	---	---	---	56
Binghamton	828	986.5	1017.3	80	55	67.7	----	88	1	41	13	0	0	59	80	5.07	-----	2.59	12	7	0.0	0	4.8	SW	--	---	--	2	16	13	7.0	--
Buffalo	693	988.8	1016.9	78	59	68.6	+.2	88	27	45	21	0	0	58	73	4.12	+1.04	2.03	13	10	0.0	0	10.5	S	38	S	1	11	8	12	5.5	73
Canton CO	406	999.3	------	77	55	66.0	-.5	86	17	43	12	0	0	--	--	7.95	+4.30	2.46	16	6	0.0	0	6.3	---	25	NW	27	10	7	14	6.2	45
New York CO	10	------	------	--	--	----	--	--	--	--	--	--	--	----	-----	----	-----	----	--	--	---	---	---	---	---	---	---	---	---	---	---	59
New York	19	1015.2	1017.3	80	66	73.2	----	88	9	59	21	0	0	62	72	4.88	-----	1.55	11	5	0.0	0	10.1	S	34	NW	28	5	12	14	6.6	--
Oswego	292	1003.7	------	76	60	67.9	+.1	87	27	51	22	0	0	--	--	4.63	+2.03	1.35	10	5	0.0	0	6.9	---	18	N	18	10	11	10	5.5	64
Rochester	543	997.6	1016.8	80	58	68.6	-.6	92	17	44	21	2	0	58	73	2.30	-.58	1.22	7	7	0.0	0	8.0	SW	35	SW	27	10	9	12	5.8	69
Syracuse	399	994.6	1016.5	80	58	69.2	+1.9	90	27	47	22	2	0	58	72	2.52	-.34	.91	10	10	0.0	0	7.4	NW	36	NW	28	8	10	13	6.1	77
NORTH CAROLINA																																
Asheville CO	2203	------	------	82	62	71.5	+1.0	87	2	51	7	0	0	--	--	2.65	-1.51	1.52	13	6	0.0	0	---	---	27	SE	31	4	17	10	6.1	69
Asheville	----	------	1017.5	--	--	----	--	--	--	--	--	--	--	63	82	----	-----	----	--	--	---	---	5.2	NNW	---	---	--	--	--	--	---	--
Charlotte CO	741	------	------	--	--	----	--	--	--	--	--	--	--	----	-----	----	-----	----	--	--	---	---	---	---	21	S	30	---	---	---	---	76
Charlotte	753	989.8	1017.0	87	66	76.1	+.2	95	2	57	7	6	0	65	73	2.69	-2.38	1.07	18	11	0.0	0	5.6	SE	--	---	--	5	18	8	6.0	--
Greensboro	891	986.5	1017.9	84	64	74.2	-1.4	92	2	55	14	3	0	65	78	3.31	-1.93	.71	12	11	0.0	0	6.1	NE	29	N	12	8	14	9	5.6	65
Hatteras	4	1016.3	1016.7	83	72	77.7	-.3	87	31	66	6	0	0	70	78	3.72	-2.03	2.36	10	[illegible]	0.0	0	9.4	S	37	NW	20	13	10	8	5.0	76
Raleigh CO	400	------	------	--	--	----	--	--	--	--	--	--	--	----	-----	----	-----	----	--	--	---	---	---	---	18	NE	22	---	---	---	---	57
Raleigh	438	1001.7	1017.3	88	64	76.0	----	96	2	56	7	12	0	65	76	.81	-----	.36	3	4	0.0	0	4.3	NE	--	---	--	10	13	8	5.4	--
Wilmington CO	6	1015.6	------	86	70	78.0	+.4	95	2	62	7	3	0	--	--	3.43	-2.93	2.02	9	6	0.0	0	---	---	28	NW	20	12	10	9	4.9	79
Wilmington	----	------	1017.1	--	--	----	--	--	--	--	--	--	--	70	--	----	-----	----	--	--	---	---	4.6	NE	---	---	--	---	---	---	---	--
Winston-Salem	967	983.1	1017.7	85	64	74.5	-1.7	92	2	57	5	3	0	64	74	2.30	-2.43	.56	10	9	0.0	0	6.0	NE	--	---	--	7	16	[illegible]	5.6	--
NORTH DAKOTA																																
Bismarck	1653	955.6	1015.3	81	52	66.5	-.2	93	6	37	20	4	0	52	67	1.11	-.71	.44	10	6	0.0	0	8.6	E	56	SE	5	13	9	9	5.2	71
Devils Lake CO	1471	963.1	1015.9	76	51	63.4	-1.4	90	6	37	19	1	0	--	--	1.23	-1.25	.37	9	4	0.0	0	7.2	---	30	NW	18	--	--	--	4.3	77
Fargo	895	981.4	1015.4	78	53	65.5	-.6	95	8	37	20	3	0	51	64	.42	-2.47	.23	7	6	0.0	0	11.5	ESE	35	NW	18	--	--	--	5.7	64
Williston CO	1877	948.5	1014.5	76	52	64.3	-1.8	91	3	39	17	1	0	52	69	1.66	+.19	.48	9	2	0.0	0	6.1	---	28	W	4	--	--	--	6.5	76
OHIO																																
Akron-Canton	1210	973.2	1017.7	80	57	68.4	-2.6	92	17	44	21	2	0	58	73	2.03	-1.37	1.13	11	3	0.0	0	6.2	SW	--	---	--	10	13	8	5.2	--
Cincinnati CO	553	------	------	--	--	----	--	--	--	--	--	--	--	----	-----	----	-----	----	--	--	---	---	---	---	---	---	---	---	---	---	---	60
Cincinnati	871	985.8	1017.4	81	60	70.5	----	92	17	45	21	2	0	61	75	1.93	-----	.58	6	2	0.0	0	5.2	N	--	---	--	12	10	9	5.2	--
Cleveland	787	989.5	1017.2	82	59	70.6	+.4	93	17	45	21	4	0	58	69	1.81	-.96	2.06	8	2	0.0	0	8.4	S	47	W	1	13	13	5	4.5	72
Columbus CO	724	------	------	--	--	----	--	--	--	--	--	--	--	----	-----	----	-----	----	--	--	---	---	---	---	---	---	---	---	---	---	---	66
Columbus	815	987.1	1017.1	81	58	69.8	-1.6	91	17	44	21	1	0	59	73	3.16	-.41	1.10	9	6	0.0	0	5.3	NW	18	NW	15	10	15	6	5.1	--
Dayton	1002	981.7	1017.6	80	60	69.8	-3.1	90	17	46	21	1	0	59	72	4.17	+.90	1.90	9	4	0.0	0	7.7	SW	34	N	28	9	13	9	5.4	71
Sandusky	603	994.6	------	81	62	71.8	0	94	17	50	21	2	0	--	--	2.82	-.34	.83	8	3	0.0	0	6.5	---	21	NW	20	14	11	6	4.6	74
Toledo	621	993.2	1017.2	81	59	69.6	-.6	94	17	44	21	1	0	59	72	2.06	-.80	.76	9	5	T	T	7.7	SW	38	NW	16	11	11	9	5.3	68
Youngstown	1178	974.9	1017.3	80	56	68.2	-1.0	92	17	44	21	2	0	57	73	1.68	-1.46	.88	7	5	0.0	0	6.6	SW	20	WNW	18	10	13	8	4.9	--
OKLAHOMA																																
Oklahoma City CO	1254	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	---	---	19	S	4	--	--	--	---	75
Oklahoma City	1254	969.2	1014.5	86	66	76.2	-3.5	96	8	56	20	12	0	66	75	3.80	+.91	2.37	6	3	0.0	0	8.8	S	--	---	--	--	--	--	5.0	--
Tulsa	672	991.2	1014.7	85	66	75.5	-4.6	95	25	54	20	7	0	66	79	2.87	-.41	1.25	10	6	0.0	0	8.7	S	32	N	15	--	--	--	6.4	61
OREGON																																
Baker	3369	------	------	--	--	----	----	--	--	--	--	--	--	44	--	----	-----	----	--	--	---	---	---	NNW	--	---	--	--	--	--	---	--
Baker CO	3446	896.4	1015.2	84	50	66.9	+2.3	97	17	40	6	11	0	--	--	.18	-.31	.12	4	5	0.0	0	5.7	---	17	S	2	18	6	7	3.5	83
Burns CO	4143	874.7	1014.8	86	51	68.7	+4.1	97	17	33	6	12	0	39	36	.12	-.13	.08	3	4	T	0	---	---	--	---	--	15	10	6	4.1	--
Eugene	364	1003.4	1016.8	86	52	68.8	----	99	19	43	6	10	0	53	62	.43	-----	.38	3	0	0.0	0	8.0	N	--	---	--	23	4	4	2.6	--
Meacham	4050	879.1	1017.3	78	51	64.6	----	95	17	30	4	1	0	42	48	.42	-----	.26	5	6	0.0	0	5.3	WNW	--	---	--	20	5	6	3.3	--
Medford	1314	968.2	1014.8	91	54	72.8	+1.7	102	16	45	8	18	0	48	46	T	-.17	T	0	1	0.0	0	6.9	NW	--	---	--	22	5	4	2.5	--
Pendleton	1489	962.1	1014.6	87	59	73.2	+2.7	99	17	48	4	11	0	43	38	.20	-.32	.18	2	2	0.0	0	7.4	SE	--	---	--	21	4	6	2.6	--
Portland CO	30	------	------	--	--	----	----	--	--	--	--	--	--	--	--	.47	-.17	----	-----	----	---	---	---	---	---	---	---	---	---	---	---	--
Portland	21	1015.6	1016.9	82	56	68.8	+3.1	95	17	47	3	8	0	55	66	.72	-----	.66	4	0	0.0	0	6.5	NW	24	S	23	14	10	7	4.1	69
Roseburg CO	479	997.6	1015.9	87	55	71.0	+3.0	101	16	48	6	9	0	--	--	.11	-.23	.11	2	0	0.0	0	4.8	---	18	N	28	21	6	4	2.7	83
Salem	195	1009.1	1016.5	85	52	68.8	+2.0	98	17	44	3	9	0	53	63	.35	-.12	.24	2	0	0.0	0	6.6	NW	--	---	--	18	8	5	3.4	--
Sexton Summit CO	3836	------	------	79	54	66.5	----	92	16	40	4	3	0	--	--	.08	-----	.08	1	0	0.0	0	---	---	--	---	--	25	1	5	2.4	--
Troutdale	29	------	------	84	53	68.5	----	96	17	46	3	9	0	55	68	.42	-----	.31	2	0	0.0	0	5.1	WNW	--	---	--	15	9	7	4.1	--
PENNSYLVANIA																																
Allentown	381	1003.4	1017.4	83	60	71.4	-.7	92	29	48	22	3	0	61	75	2.14	-2.26	.87	14	9	0.0	0	5.0	SW	--	---	--	5	12	14	6.5	--
Curwensville	2215	------	------	74	55	65.1	----	85	17	38	21	0	0	58	83	3.66	-----	1.33	11	7	0.0	0	7.5	WNW	20	WSW	3	4	13	14	6.6	--
Erie CO	655	------	------	77	64	70.1	+.5	85	27	50	21	0	0	--	--	3.98	+.71	1.38	11	7	0.0	0	---	---	35	W	26	12	9	10	5.1	49
Harrisburg	335	1003.7	1017.2	82	62	72.2	-.4	89	28	52	13	0	0	61	71	1.28	-2.76	.57	9	7	0.0	0	4.9	ESE	23	SW	15	5	12	14	6.7	68
Park Place	1932	------	------	75	59	66.8	----	83	29	46	21	0	0	--	--	2.66	-----	1.10	7	1	0.0	0	---	---	--	---	--	8	10	13	6.4	--
Philadelphia CO	26	------	------	--	--	----	--	--	--	--	--	--	--	----	-----	----	-----	----	--	--	---	---	---	---	---	---	---	---	---	---	---	66
Philadelphia	----	1015.9	1016.9	83	64	73.7	+.4	92	29	55	22	3	0	63	74	4.29	-.33	2.17	[illegible]	7	0.0	0	7.4	SW	22	S	19	7	11	13	6.3	--
Pittsburgh	1248	986.8	1017.1	80	61	70.7	-.6	90	17	50	21	2	0	59	70	2.63	-.60	1.08	8	4	0.0	0	7.3	S	23	W	9	6	16	9	5.7	53
Reading CO	266	1005.4	------	83	64	73.4	+.5	92	29	52	22	2	0	--	--	2.26	-1.95	.69	9	6	0.0	0	8.6	---	42	W	9	9	5	17	6.3	61
Scranton CO	746	988.2	1016.9	80	60	70.3	+.5	88	1	48	22	0	0	--	--	1.73	-1.96	.48	12	3	0.0	0	5.1	---	25	NW	29	6	16	9	5.5	53
Williamsport	527	998.3	1017.1	81	59	69.8	-1.1	88	1	45	13	0	0	61	77	6.64	+2.67	3.46	11	6	T	T	4.4	NW	24	S	27	4	14	13	6.0	--
RHODE ISLAND																																
Block Island CO	35	1015.9	1016.9	75	63	68.8	+.3	79	1	59	7	0	0	--	--	2.62	-1.05	1.63	7	2	0.0	0	11.7	---	33	N	21	12	9	10	5.5	76
Providence	55	1011.2	1017.3	78	61	69.3	-.1	86	9	52	22	0	0	61	73	3.60	+.10	1.31	7	5	0.0	0	7.5	SSW	26	SW	11	7	13	11	6.2	51
SOUTH CAROLINA																																
Charleston CO	9	------	------	--	--	----	--	--	--	--	--	--	--	----	-----	----	-----	----	--	--	---	---	---	---	31	SW	20	--	--	--	---	75
Charleston	41	1014.6	1016.5	88	69	78.5	-.8	94	2	61	8	7	0	70	80	6.48	-.67	2.35	10	13	0.0	0	4.9	NE	--	---	--	11	15	5	4.8	--
Columbia CO	332	------	------	--	--	----	--	--	--	--	--	--	--	----	-----	----	-----	----	--	--	---	---	---	---	25	N	11	--	--	--	---	71
Columbia	217	1008.5	1016.4	89	67	78.4	----	99	2	61	8	13	0	68	75	4.72	-----	2.26	6	13	0.0	0	5.0	E	--	---	--	11	13	7	4.9	--

Data from airport unless otherwise specified. CO indicates data from city office.

Table 2—Continued

Station	Elevation (ground)	Station	Sea level	Pressure	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days Max. 90° F. or above	No. of days Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation Total	Departure from normal	Greatest in 24 hours	No. of days 0.1 inch or more	No. of days With thunderstorms	Snow, Sleet, Hail Total	Snow, Sleet, Hail Max. depth on ground	Wind Average hourly speed	Wind Prevailing direction	Wind Fastest mile Speed	Wind Fastest mile Direction	Wind Fastest mile Date	No. of days (sunrise to sunset) Clear	No. of days (sunrise to sunset) Partly cloudy	No. of days (sunrise to sunset) Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb	°F	°F	°F	°F	°F		°F		°F			°F	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
Florence	146	1011.2	1013.0	88	67	77.4	----	96	2	59	7	14	0	68	79	4.00	-----	1.31	11	12	0.0	0	5.4	SE	--	---	--	13	10	8	4.6	--
Greenville	1096	980.0	1016.7	86	67	76.3	+.5	92	1	61	8	2	0	65	74	1.74	-3.76	.63	11	3	0.0	0	6.4	NNE	23	SE	31	6	11	14	6.5	63
Spartanburg	901	983.4	1017.3	87	67	76.6	-1.3	94	2	60	5	5	0	65	73	1.79	-3.65	.65	8	6	0.0	0	6.5	N	25	SSE	31	10	11	10	5.5	--
SOUTH DAKOTA																																	
Huron	1282	968.8	1015.1	82	55	68.3	-1.1	96	16	38	20	6	0	54	69	.83	-1.63	.61	6	8	0.0	0	10.3	S	45	SW	6	11	10	10	5.5	79
Rapid City	3215	903.2	1014.7	82	54	67.7	-1.8	94	23	45	20	5	0	48	57	2.74	+1.04	1.40	8	12	1.0	1	11.7	SSE	57	E	9	13	13	5	4.5	80
Sioux Falls	1426	965.8	1016.3	81	54	67.5	-3.7	94	16	34	20	3	0	55	71	.93	-2.24	.41	4	3	0.0	0	8.5	SW	--	---	--	10	9	12	5.9	--
TENNESSEE																																	
Bristol	1519	964.1	1017.9	83	61	71.6	-3.5	87	26	50	7	0	0	63	80	5.65	+1.36	1.42	18	8	T	T	4.9	NE	--	---	--	6	15	10	6.2	--
Chattanooga	670	989.5	1016.5	85	65	74.9	-.8	91	2	56	4	6	0	66	80	4.11	+.08	1.31	13	9	0.0	0	4.0	NE	42	SW	18	7	9	15	6.3	64
Knoxville	949	982.4	1017.1	84	64	74.1	-1.3	90	1	56	4	1	0	65	79	4.37	+.45	1.12	16	8	0.0	0	6.3	NE	42	NW	11	7	13	11	6.2	57
Memphis CO	271	------	------	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	---	---	---	---	---	---	---	---	---	---	85
Memphis	263	1001.7	1015.5	86	67	76.1	-2.3	95	14	57	22	9	0	66	75	5.61	+2.25	2.15	11	6	0.0	0	6.0	NE	--	---	--	8	9	17	6.7	--
Nashville	577	996.6	1016.3	83	65	73.7	-4.1	92	17	55	22	2	0	66	82	6.66	+2.95	1.89	13	6	0.0	0	4.8	S	33	W	1	7	10	14	6.5	57
TEXAS																																	
Abilene	1752	953.9	1013.2	96	68	80.1	-.2	98	5	60	19	23	0	63	66	5.79	+3.55	3.79	7	7	0.0	0	10.4	S	40	NE	29	13	9	9	4.4	73
Amarillo	3700	981.4	1013.5	87	61	73.7	-.9	100	24	51	20	14	0	57	65	4.54	+1.46	1.95	9	14	T	T	8.7	S	52	S	26	--	--	--	3.9	77
Austin	515	992.8	1013.6	95	72	83.4	-.4	100	17	66	30	28	0	66	65	.59	-1.46	.46	4	3	0.0	0	8.2	S	35	S	27	--	--	--	3.8	76
Bay Springs	2302	927.2	1013.7	93	68	80.4	-2.1	101	23	60	19	22	0	58	55	.34	-1.67	.22	5	10	0.0	0	10.6	S	--	---	--	17	12	2	3.5	--
Brownsville	16	1010.6	1012.9	93	75	84.3	.4	96	31	72	10	31	0	73	78	.49	-2.37	.30	4	2	0.0	0	9.2	SE	27	SE	4	--	--	--	3.4	81
Corpus Christi	40	1013.3	1014.0	95	74	84.6	3.0	102	18	70	9	31	0	73	78	.42	-1.85	.31	3	3	0.0	0	11.3	SE	30	N	29	17	13	1	3.2	89
Dallas	487	997.0	1014.2	93	72	82.2	-1.3	101	4	62	21	25	0	67	66	3.45	+.68	1.40	9	6	0.0	0	7.3	SE	26	SE	27	--	--	--	4.4	73
Del Rio CO	957	979.2	1011.8	95	73	84.3	.1	100	4	68	29	29	0	64	57	.80	-1.12	.39	2	2	0.0	0	8.5	---	28	S	30	16	12	3	3.8	82
El Paso	3920	666.6	1010.3	86	67	80.6	2.6	100	31	63	19	28	0	50	40	.16	-1.54	.08	4	10	0.0	0	7.5	S	37	N	15	--	--	--	2.2	90
Fort Worth	688	990.5	1014.0	93	71	82.2	-.5	101	8	62	31	23	0	66	65	3.05	+.43	2.12	6	5	0.0	0	13.5	ESE	43	NW	22	--	--	--	3.9	--
Galveston CO	7	------	------	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	---	---	34	SE	13	---	---	---	---	---	78
Galveston	7	1014.6	1014.8	90	78	84.0	1.0	95	18	71	18	28	0	73	76	1.05	-3.23	.75	5	8	0.0	0	9.1	SE	--	---	--	12	19	0	4.1	---
Houston CO	51	------	------	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	---	---	33	NW	19	---	---	---	---	---	71
Houston	42	1012.2	1014.1	93	72	82.4	.3	97	3	68	31	25	0	72	77	.72	-1.89	.30	6	7	0.0	0	8.6	S	--	---	--	7	20	4	4.9	--
Laredo	500	997.6	1011.9	100	75	87.5	.6	105	5	71	31	31	0	67	60	.42	-1.20	.28	3	4	0.0	0	12.1	SE	--	---	--	--	--	--	4.1	--
Lubbock	3238	901.2	1013.1	89	63	75.9	-2.2	99	24	56	31	15	0	57	61	2.08	+.10	1.49	8	11	0.0	0	11.1	SSE	--	---	--	18	10	3	3.2	--
Palestine CO	491	997.3	1014.9	91	72	81.5	-.3	96	25	64	31	20	0	--	--	2.65	+.48	1.73	9	7	0.0	0	5.8	---	26	SE	27	10	15	6	5.0	77
Port Arthur CO	5	------	------	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	---	---	39	E	26	--	--	--	---	---	75
Port Arthur	5	1013.5	1014.3	92	71	81.4	----	97	18	65	21	27	0	73	85	3.72	-----	1.55	6	10	0.0	0	5.9	S	--	---	--	8	22	1	4.8	--
San Angelo	1903	948.2	1013.3	93	68	80.4	-3.0	98	5	58	19	22	0	59	58	2.44	+.15	1.16	6	9	0.0	0	7.1	S	--	---	--	19	7	5	3.4	--
San Antonio	782	986.1	1013.7	94	71	82.5	-1.0	99	3	66	31	27	0	65	64	6.15	+3.73	5.57	3	1	0.0	0	8.3	SE	26	W	13	--	--	--	4.1	79
Victoria	109	1009.8	1013.9	96	73	84.7	-.1	100	3	69	2	31	0	70	74	1.49	-1.37	1.03	6	5	0.0	0	9.2	SE	--	---	--	10	17	4	4.6	--
Waco	504	995.3	1015.5	95	73	84.2	-1.2	100	4	64	31	28	0	65	62	.85	-1.41	.64	5	8	0.0	0	8.1	S	--	---	--	11	15	5	4.3	--
Wichita Falls	1027	978.3	1013.7	90	68	78.8	-7.1	98	11	57	21	16	0	66	70	6.51	+4.34	2.65	7	5	0.0	0	9.3	SE	30	N	17	--	--	--	4.1	--
UTAH																																	
Milford	5029	848.3	1014.5	91	51	70.9	0	99	31	42	14	23	0	35	30	.18	-.47	.18	2	6	0.0	0	8.2	S	--	---	--	19	12	0	2.7	--
Salt Lake City	4222	871.7	1012.8	90	58	73.8	+1.0	98	31	48	6	15	0	40	34	.03	-.87	.03	1	3	0.0	0	7.7	SE	38	SE	4	22	7	2	2.3	90
VERMONT																																	
Burlington	398	1001.0	1016.1	77	56	66.5	-1.4	88	17	46	15	0	0	58	74	3.90	+.53	1.30	12	4	0.0	0	8.5	S	26	S	25	13	3	15	5.8	72
VIRGINIA																																	
Cape Henry	16	1016.3	1016.9	81	70	75.5	-1.4	94	1	61	15	2	0	--	--	2.85	-2.01	.98	16	7	0.0	0	10.7	---	37	NW	20	13	12	6	4.5	78
Lynchburg	947	984.1	1017.4	82	64	72.8	-1.5	91	30	58	14	2	0	64	78	6.45	+2.67	3.49	12	10	0.0	0	6.6	SSW	43	S	30	6	11	14	6.4	58
Norfolk CO	11	------	------	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	---	---	39	NW	6	--	--	--	---	---	70
Norfolk	25	1016.3	1017.4	83	67	74.9	-.9	92	1	57	15	4	0	66	77	5.55	+.33	2.03	11	12	0.0	0	9.0	S	--	---	--	9	15	7	5.5	--
Richmond	162	1011.2	1017.2	86	65	75.5	-.4	97	2	54	14	9	0	66	78	3.32	-----	1.14	8	7	0.0	0	6.8	SSW	26	NE	23	4	15	12	6.4	63
Roanoke	1192	976.0	1017.6	82	63	72.3	-2.2	88	29	55	7	0	0	63	77	2.74	-1.19	.73	13	6	0.0	0	6.6	SE	--	---	--	5	12	14	6.6	--
Urbanna	31	1016.3	1017.3	84	65	74.2	----	93	1	51	14	6	0	--	--	3.07	-----	.75	10	8	0.0	0	---	---	--	---	--	8	15	8	5.5	--
Wash. Nat'l. AP	14	1013.5	1017.6	84	67	75.6	+.6	92	1	58	13	2	0	63	71	7.32	+3.31	3.86	9	6	0.0	0	8.9	S	40	NE	6	7	12	12	6.2	67
WASHINGTON																																	
Ellensburg	1727	953.3	1014.7	86	54	70.0	+3.2	97	20	46	28	8	0	47	48	T	-.20	T	0	1	0.0	0	13.7	NW	--	---	--	20	6	5	2.9	--
Keiso	17	------	------	79	51	65.0	----	92	17	41	4	3	0	--	--	1.21	-----	.91	6	1	0.0	0	---	---	--	---	--	12	11	8	4.6	---
North Head CO	194	1010.5	1018.0	62	55	58.4	+.8	73	16	50	1	0	0	--	--	1.75	+.70	.54	11	0	0.0	0	14.5	---	41	S	23	4	11	16	7.0	49
Olympia	190	1010.2	1017.4	79	50	64.2	----	94	1	40	4	3	0	54	75	1.47	-----	.97	5	0	0.0	0	4.2	S	--	---	--	15	8	8	4.3	--
Port Angeles	8	1016.9	1018.2	63	51	56.9	----	76	17	47	4	0	0	52	85	1.27	-----	.67	7	1	0.0	0	11.2	W	--	---	--	14	8	9	4.7	--
Seattle CO	14	------	------	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	---	---	25	S	23	---	---	---	---	---	70
Seattle	14	1015.9	1017.2	78	55	66.3	+2.0	89	26	46	30	0	0	54	68	1.73	+1.00	1.32	4	0	0.0	0	7.3	NNW	--	---	--	15	6	10	4.4	--
Seattle-Tacoma AP	379	1002.1	1017.4	75	52	63.8	----	86	20	44	4	0	0	54	73	2.17	-----	1.36	7	0	0.0	0	7.9	NNE	--	---	--	10	5	10	4.4	--
Spokane	2357	946.5	1014.7	84	56	70.2	+2.1	93	21	46	4	6	0	43	41	.41	-.21	.39	3	0	0.0	0	9.0	SSW	38	SW	22	20	5	6	3.5	78
Stampede Pass CO	3960	882.2	1019.3	68	49	58.2	----	82	17	39	4	0	0	--	--	3.24	-----	1.95	7	1	0.0	0	11.1	---	32	SW	15	18	7	6	3.5	--
Stevenson CO	319	------	------	80	58	68.8	----	96	19	52	4	6	0	--	--	.71	-----	.47	3	1	0.0	0	---	---	--	---	--	18	7	6	3.7	--
Tacoma CO	127	1010.5	1017.3	74	55	64.7	+2.1	86	26	48	4	0	0	--	--	1.26	+.52	.60	5	1	0.0	0	6.9	---	24	N	16	19	6	6	4.1	71
Tatoosh CO	101	1014.9	1018.1	60	51	55.7	+.4	69	17	46	31	0	0	54	92	3.11	+1.09	1.96	10	0	0.0	0	10.5	S	39	S	14	1	14	16	7.3	51
Walla Walla	1200	------	------	--	--	----	----	--	--	--	--	--	--	50	--	-----	-----	----	--	--	---	---	---	---	--	E	--	---	---	---	---	---	--
Walla Walla CO	949	978.7	1013.9	89	63	75.7	+3.0	101	17	55	25	15	0	--	--	.47	-.02	.29	4	2	T	T	4.8	---	20	W	15	20	8	3	2.5	87
Yakima	1058	975.6	1013.8	89	52	70.4	+1.2	99	18	45	28	16	0	47	47	T	-.34	T	0	1	0.0	0	6.8	W	--	---	--	22	4	5	2.8	--
WEST VIRGINIA																																	
Elkins	1969	949.9	1018.5	78	56	67.2	-1.1	85	18	44	14	0	0	60	84	2.82	-1.04	.86	12	11	0.0	0	3.2	NW	22	E	26	1	14	16	7.4	53
Huntington	565	------	------	85	62	73.3	-.4	92	17	50	21	5	0	--	--	2.93	-.75	1.20	8	--	0.0	0	---	---	--	---	--	---	---	---	---	---	--
Parkersburg	837	986.5	1017.4	--	--	----	----	--	--	--	--	--	--	62	--	-----	-----	----	--	--	---	---	4.7	SSW	--	---	--	---	---	---	---	---	--
Parkersburg CO	615	------	------	82	61	71.8	-2.1	92	17	49	22	4	0	--	--	3.20	-.31	.85	11	6	0.0	0	---	---	19	SW	9	6	13	12	6.1	64
Petersburg	1013	981.0	------	85	58	71.4	----	92	17	42	14	4	0	--	--	3.80	-----	1.95	14	11	0.0	0	---	---	--	---	--	6	7	18	6.8	--
WISCONSIN																																	
Green Bay	689	991.2	1017.1	73	50	61.7	-6.0	87	16	38	22	0	0	54	78	2.72	-.46	1.01	8	4	T	T	8.0	SW	50	SW	24	12	8	11	5.5	67
La Crosse	669	992.2	1016.5	76	55	65.2	-4.2	90	16	36	20	2	0	57	77	2.40	-1.31	1.54	7	4	0.0	0	7.0	SSE	29	SW	23	--	--	--	6.5	70
Madison	857	985.8	1017.2	78	55	66.2	-3.6	91	15	39	20	2	0	57	77	2.69	-.52	1.26	12	5	0.0	0	8.6	NE	34	NW	10	--	--	--	6.0	65
Milwaukee	674	991.9	1016.9	74	57	65.7	-1.9	89	16	44	20	0	0	57	79	3.29	+.63	1.39	12	7	T	T	10.1	NNE	32	W	23	6	10	15	6.5	52
WYOMING																																	
Casper	5346	839.8	1013.8	83	50	66.6	-2.9	93	31	41	20	2	0	37	38	.02	-.91	.02	2	5	0.0	0	9.4	SW	--	---	--	14	10	7	4.4	--
Cheyenne	6139	815.4	1015.4	80	49	64.1	-1.5	89	31	41	27	0	0	40	48	.39	-1.16	.18	4	13	T	0	9.2	W	40	W	9	12	11	8	4.9	74
Lander	5563	831.7	1015.4	83	51	66.9	+1.4	92	31	44	20	3	0	37	37	.11	- 42	.06	3	10	0.0	0	7.3	---	56	SW	8	16	9	6	3.8	74
Rock Springs	6741	798.2	1016.4	80	49	64.5	-1.6	88	31	41	14	0	0	33	36	.15	-.54	.13	3	4	0.0	0	11.1	W	--	---	--	14	11	6	4.0	--
Sheridan	4021	886.2	1015.4	83	50	66.6	+.1	94	31	40	20	6	0	45	50	.77	-.14	.45	8	7	T	0	6.6	S	43	NW	23	17	9	5	3.7	83
PACIFIC AREA																																	
Canton Island	12	1010.5	1011.0	88	77	82.3	----	91	16	73	31	6	0	72	76	4.04	-----	2.00	7	0	0.0	0	---	---	--	---	--	12	15	4	4.5	--
Hilo	26	1014.2	1015.6	84	68	75.8	----	93	15	63	1	1	0	68	79	5.35	-----	2.46	21	0	0.0	0	5.9	SW	--	---	--	1	10	20	7.6	--
Honolulu CO	12	------	------	--	--	78.0	-.4	--	--	--	--	--	--	--	--	1.72	+.44	----	--	--	---	---	---	---	36	SW	15	---	---	---	---	---	73
Honolulu	7	1015.2	1016.0	85	73	79.0	----	87	22	69	2	0	0	67	70	1.00	-----	.72	9	0	0.0	0	11.5	ENE	--	---	--	9	14	8	5.4	--

Data from airport unless otherwise specified. CO indicates data from city office.

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days Max. 90°F. or above	Temperature: No. of days Min. 32°F. or below	Temperature: Average dew point	Average relative humidity: 1 a.m.	Average relative humidity: 7 p.m.	Precipitation: Total	Precipitation: Greatest in 1 hour	Precipitation: Date	Precipitation: Greatest in 24 hours	Precipitation: Date	Precipitation: No. of days: Snow, Sleet fall	Precipitation: No. of days: Snow, Sleet depth	Precipitation: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	Wind: Fastest mile: Time	Wind: No. of days: Clear	Wind: No. of days: Partly cloudy	Wind: No. of days: Cloudy	Wind: Mean sky cover (sunrise to sunset)	Wind: Mean sky cover (all hours)
	Ft	Mb	Mb	°F	°F	°F	°F	°F		°F				°F	%	%	In	In		In			In	In	M p. h.		M p. h.							
Lihue	115	1014.2	1016.2	83	72	77.5	----	91	14	59	1	0	0	60	75	68	4.80	-----		1.26	14	1	0.0	0	10.3	NE	--	---	--	--	7	1	6.5	6.5
Wake Island	14	1015.9	1014.6	86	77	81.8	---	96	6	72	1	0	0	77	83	72	12.10	-----		4.43	12	1	0.0	0	10.6	E	--	---	--	--	6	2	7.5	7.5
Midway Island	10	------	------	82	74	78.4	----	89	15	65	1	0	0	--	--	--	3.42	-----		.50	12	0	0.0	0	---	---	--	--	--	--	2	2	5.2	5.2
PUERTO RICO																																		
San Juan	9	1011.9	1012.6	86	75	80.5	----	98	18	63	9	1	0	74	68	70	3.31	-----		2.03	24	6	0.0	0	8.9	ESE	43	NE	23	1	4	1	6.1	6.1
ALASKA																																		
Anchorage	134	1008.1	1012.9	68	48	58.0	+2.4	80	21	39	27	1	0	50	75	84	.92	1.68		.36	6	4	0.0	0	2.9	NE	26	E	6	1	6	4	6.4	6.4
Annette Island	110	1012.1	1016.3	64	52	57.8	-.6	86	28	46	26	0	0	51	84	84	10.16	+2.56	9	4.23	14	4	0.0	0	5.8	NE	--	---	---	---	7	4	8.5	8.5
Barrow	22	1012.5	1013.2	46	34	39.5	+1.2	60	6	24	1	0	1	37	84	91	.28	+.15	15	.08	3	3	0.0	3	15.7	NE	46	E	6	1	4	4	8.9	8.9
Bethel	21	1009.1	1010.8	68	50	56.1	+3.8	84	17	38	30	0	0	50	87	87	1.02	+1.04	14	.44	17	1	0.0	0	8.6	SE	38	E	25	1	4	4	8.6	8.6
Cordova	40	997.3	1013.2	54	44	53.8	+1.7	77	6	36	1	7	0	50	87	87	4.34	-5.87	13	1.12	17	1	0.0	0	2.8	SE	34	---	--	--	5	1	6.8	6.8
Fairbanks	436	994.9	1011.9	72	44	57.7	+2.8	85	19	29	26	2	0	54	71	71	1.17	-1.00	9	.58	9	2	0.0	1	4.7	W	44	W	14	1	7	3	9.2	9.2
Galena	120	1005.8	1010.5	65	51	58.3	+5.8	82	19	41	5	0	0	56	72	75	.58	-.29	4	.20	4	1	0.0	1	7.7	SW	35	S	23	1	10	6	8.4	8.4
Gambell	25	1006.8	1007.8	50	43	46.4	+.8	58	13	37	27	0	0	45	95	95	1.20	-.10	18	.44	18	4	0.0	1	13.4	SW	46	SW	23	1	0	0	9.2	9.2
Juneau	15	1013.7	1014.6	66	46	56.2	+5.8	78	6	37	2	0	0	45	79	79	1.46	-.23	1	1.31	12	6	0.0	1	---	S	34	---	---	---	6	11	6.6	6.6
Kotzebue	10	1009.8	1010.5	60	50	55.0	+5.0	80	30	40	28	0	0	51	84	84	.14	+.43	21	.63	21	0	0.0	0	14.3	SE	44	SE	23	1	1	26	8.7	8.7
McGrath	334	999.0	1011.5	68	47	57.2	+4.3	88	16	33	31	11	0	50	79	82	2.82	-.78	12	.78	12	0	0.0	0	---	S	48	SW	6	1	5	5	8.8	8.8
Nome	13	1006.1	1006.8	52	46	48.9	-.6	70	8	41	29	0	0	47	91	91	4.08	+2.46	24	.74	24	0	0.0	0	---	SSW	41	S	11	1	1	4	8.5	8.5
Northway	1713	959.6	1013.2	69	44	56.5	+3.7	91	17	32	2	16	0	45	70	70	.39	+1.35	2	.14	2	1	0.0	0	---	NW	--	---	---	---	4	3	7.1	7.1
St. Paul Island	22	1008.0	1009.1	52	45	48.4	+1.0	60	21	38	29	0	0	43	95	95	2.80	-.58	12	.78	12	0	0.0	0	---	---	--	---	---	---	0	1	9	9.0
Umiat	337	1001.7	------	61	40	50.3	+4.5	77	17	29	14	4	3	--	--	--	.78	-----		.30	11	0	0.0	0	6.3	E	41	---	---	---	3	11	7.1	7.1
Wales	8	------	------	54	44	48.6	+2.7	70	15	37	13	1	0	--	--	--	2.14	-.45	13	.53	13	0	0.0	0	---	---	--	---	---	---	1	1	8	8.0
Yakutat	28	1013.1	1014.2	62	46	54.3	+1.3	77	9	26	23	2	0	48	82	80	3.57	-.65	4	1.54	10	0	0.0	0	---	E	42	E	12	1	2	1	7.7	7.7

* Note: No. of days Max. 70°F. or above for Arctican Stations.

† Data entered in column headed "Fastest mile" is the fast[illegible] mile observed. [illegible]

HEATING DEGREE DAYS

(Base 65°F.)

Table 3

AUGUST 195

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Birmingham (AP)	0	0	1
Mobile	0	0	0
Mobile (AP)	0	0	
Montgomery	0	0	0
Montgomery (AP)	0	0	
ARIZONA			
Flagstaff	94	138	113
Payson	0	1	
Phoenix	0	0	0
Phoenix (AP)	0	0	
Prescott	0	0	
Tucson	0	0	
Winslow (AP)	0	0	
Yuma (AP)	0	0	0
ARKANSAS			
Ft. Smith (AP)	0	0	0
Little Rock (AP)	0	0	0
Texarkana	0	0	
CALIFORNIA			
Bakersfield (AP)	0	0	
Beaumont	0	0	
Bishop (AP)	0	0	
Blue Canyon (AP)	30	38	
Burbank (AP)	0	0	
Eureka	230	320	550
Fresno (AP)	0	0	0
Los Angeles	0	0	1
Los Angeles (AP)	8	8	
Mt. Shasta	32	40	
Oakland (AP)	28	28	
Red Bluff (AP)	0	0	0
Sacramento	2	2	3
Sacramento (AP)	1	2	
Sandberg	2	2	
San Diego (AP)	0	0	0
San Francisco	171	386	375
San Francisco (AP)	22	139	
San Jose	8	11	
Santa Catalina	33	53	
Santa Maria (AP)	102	139	
COLORADO			
Alamosa (AP)	162	244	
Colorado Springs (AP)	33	71	
Denver (AP)	14	21	16
Grand Junction (AP)	0	0	
Pueblo (AP)	4	4	7
CONNECTICUT			
Bridgeport (AP)	0	0	
Hartford (AP)	2	5	19
New Haven (AP)	1	2	14
DELAWARE			
Wilmington (AP)	2	2	
DIST. OF COLUMBIA			
Washington	0	0	2
Washington (AP)	0	0	
FLORIDA			
Apalachicola	0	0	0
Daytona Beach (AP)	0	0	
Fort Myers	0	0	
Jacksonville	0	0	0
Jacksonville (AP)	0	0	
Key West	0	0	0
Key West(AP)	0	0	
Melbourne (AP)	0	0	
Miami	0	0	0
Miami Beach*	0	0	
Int. Airport,Hialeah	0	0	
Orlando (AP)	0	0	
Pensacola	0	0	0
Tallahassee (AP)	0	0	
Tampa (AP)	0	0	0
West Palm Beach (AP)	0	0	
GEORGIA			
Albany	0	0	0
Atlanta	0	0	0
Atlanta (AP)	0	0	
Athens (AP)	0	0	
Augusta (AP)	0	0	0
Columbus	0	0	
Macon (AP)	0	0	0
Rome	0	0	
Savannah (AP)	0	0	0
Valdosta (AP)	0	0	
IDAHO			
Boise (AP)	5	19	26
Lewiston (AP)	13	22	
Pocatello (AP)	14	32	33
ILLINOIS			
Cairo	0	0	0
Chicago	2	12	13
Chicago (AP)	12	18	
Chicago University	13	15	
Joliet (AP)	28	32	
Moline (AP)	24	28	
Peoria (AP)	18	20	12
Springfield	3	3	3
Springfield (AP)	18	20	
INDIANA			
Evansville (AP)	5	5	1
Ft. Wayne (AP)	20	28	19
Indianapolis	4	4	5
Indianapolis (AP)	13	14	
South Bend (AP)	18	33	
Terre Haute (AP)	14	14	
IOWA			
Burlington (AP)	24	30	
Charles City	45	54	32
Davenport	14	15	8
Des Moines	22	24	7
Des Moines (AP)	31	34	
Dubuque	25	28	15
Keokuk	8	10	4
Sioux City (AP)	30	36	14
KANSAS			
Concordia	13	15	4
Dodge City (AP)	16	16	4
Goodland (AP)	20	28	
Topeka	6	6	2
Topeka (AP)	12	12	
Wichita (AP)	10	10	1
KENTUCKY			
Lexington (AP)	6	6	4
Louisville	0	0	1
Louisville (AP)	1	1	
Pikeville	0	0	
LOUISIANA			
Baton Rouge (AP)	0	0	0
Lake Charles (AP)	0	0	
New Orleans	0	0	0
New Orleans (AP)	0	0	
Int. Airport Moisant	0	0	
Shreveport (AP)	0	0	0
MAINE			
Caribou (AP)	128	206	
Eastport	135	259	304
Greenville	142	201	182
Portland (AP)	45	71	76
MARYLAND			
Baltimore	0	0	1
Baltimore (AP)	1	1	
Dist. Heights*	1	1	
Frederick	0	0	
Riverdale*	1	1	
Takoma Park*	2	2	4
MASSACHUSETTS			
Boston (AP)	4	4	22
Milton	27	35	
Nantucket (AP)	15	24	30
Pittsfield	60	104	
MICHIGAN			
Alpena	113	168	132
Detroit (AP)	16	25	22
Escanaba	178	271	138
Grand Rapids	27	35	28
Grand Rapids (AP)	44	71	
Iron Mountain*	171	253	
Lansing (AP)	48	70	
Marquette	217	348	185
Muskegon (AP)	58	106	
Sault Ste. Marie(AP)	226	363	201
Traverse City (AP)	116	181	
Ypsilanti (AP)	20	28	
MINNESOTA			
Duluth	204	349	177
Duluth (AP)	229	361	
Internl. Falls	230	325	
Minneapolis (AP)	46	54	31
Rochester	71	84	
St. Cloud	98	121	71
St. Paul (AP)	50	58	
MISSISSIPPI			
Jackson (AP)	0	0	0
Meridian (AP)	0	0	0
Vicksburg	0	0	0
MISSOURI			
Columbia	11	11	3
Columbia (AP)	10	11	
Kansas City (AP)	5	5	2
St. Joseph (AP)	13	13	
St. Louis	3	3	1
St. Louis (AP)	4	4	
Springfield (AP)	9	9	3
MONTANA			
Billings (AP)	20	52	45
Butte (AP)	188	382	
Glasgow	67	97	
Great Falls (AP)	60	113	
Havre (AP)	36	71	81
Helena (AP)	48	109	107
Kalispell			168
Missoula (AP)	34	93	93
NEBRASKA			
Grand Island (AP)	19	23	
Lincoln	19	21	6
Lincoln (AP)	21	23	
Norfolk (AP)	20	29	
North Platte (AP)	22	32	13
Omaha (AP)	19	20	5
Valentine	28	69	27
NEVADA			
Elko (AP)	18	32	
Ely (AP)	54	89	
Las Vegas	0	0	0
Reno (AP)	18	23	26
Tonopah (AP)			12
Winnemucca (AP)	17	30	33
NEW HAMPSHIRE			
Concord	22	39	67
Mt. Washington Obs.	511	1036	
NEW JERSEY			
Atlantic City	0	0	3
Newark (AP)	0	0	7
Trenton	1	1	7
NEW MEXICO			
Albuquerque (AP)	0	0	0
Clayton (AP)	15	18	
Roswell (AP)	0	0	0
Raton	21	42	
NEW YORK			
Albany (AP)	12	24	19
Bear Mountain	19	31	
Binghamton	21	34	52
Binghamton (AP)	42	64	
Buffalo (AP)	20	33	39
Canton	48	60	88
New York	0	0	5
La Guardia Field	0	0	
Oswego	17	30	
Rochester (AP)	20	29	36
Schenectady	12	19	
Syracuse (AP)	15	23	45
NORTH CAROLINA			
Asheville	0	0	5
Asheville (AP)	1	1	
Charlotte	0	0	1
Charlotte (AP)	0	0	
Greensboro (AP)	0	0	
Hatteras	0	0	0
Raleigh	0	0	1
Raleigh (AP)	0	0	
Wilmington	0	0	0
Winston-Salem (AP)	0	0	
NORTH DAKOTA			
Bismarck (AP)	54	95	65
Devils Lake	111	174	118
Fargo (AP)	82	108	
Grand Forks (AP)	105	111	92
Pembina (AP)	140	205	
Williston	97	147	89
OHIO			
Akron (AP)	33	40	
Cincinnati	0	0	4
Cincinnati (AP)	15	15	
Cleveland	7	11	21
Cleveland (AP)	18	20	
Columbus	3	8	8
Columbus (AP)	14	17	
Dayton (AP)	13	15	8
Sandusky	5	9	11
Toledo (AP)	18	36	18
Youngstown (AP)	37	42	
OKLAHOMA			
Oklahoma City	4	4	0
Oklahoma City (AP)	3	3	
Tulsa (AP)	5	5	
OREGON			
Baker	37	90	126
Baker (AP)	49	98	
Burns	33	68	
Eugene (AP)	14	29	
Meacham	82	181	
Medford (AP)	7	10	17
Pendleton (AP)	7	14	
Portland	12	24	55
Portland (AP)	17	37	
Roseburg	5	13	49
Salem (AP)	17	31	
Sexton Summit	72	154	
Troutdale	18	45	
PENNSYLVANIA			
Allentown (AP)	7	10	
Curwensville	68	119	
Erie	8	18	25
Harrisburg (AP)	7	7	7
Park Place	43	66	
Philadelphia	0	0	2
Philadelphia (AP)	1	1	
Pittsburgh	4	4	9
Pittsburgh (AP)	9	9	16
Reading	4	4	6
Scranton	14	16	28
Williamsport (AP)	13	15	22
RHODE ISLAND			
Block Island	2	3	21
Providence	3	3	22
Providence (AP)	5	8	
SOUTH CAROLINA			
Charleston	0	0	0
Charleston (AP)	0	0	
Columbia	0	0	0
Columbia (AP)	0	0	
Florence	0	0	
Greenville (AP)	0	0	1
Spartanburg	0	0	
SOUTH DAKOTA			
Huron (AP)	40	55	30
Pierre (AP)	20	38	15
Rapid City (AP)	32	76	43
Sioux Falls (AP)	44	67	
TENNESSEE			
Bristol (AP)	1	1	
Chattanooga	0	0	
Chattanooga (AP)	0	0	0
Knoxville (AP)	0	0	0
Memphis (AP)	0	0	0
Nashville (AP)	0	0	0
TEXAS			
Abilene	0	0	0
Amarillo (AP)	7	7	3
Austin (AP)	0	0	0
Big Spring (AP)	0	0	
Brownsville (AP)	0	0	0
Corpus Christi (AP)	0	0	0
Dallas (AP)	0	0	0
Del Rio	0	0	0
El Paso (AP)	0	0	0
Ft. Worth (AP)	0	0	0
Galveston	0	0	0
Galveston (AP)	0	0	
Houston	0	0	
Houston (AP)	0	0	0
Laredo	0	0	
Lubbock	0	0	
Palestine	0	0	0
Port Arthur	0	0	0
Port Arthur (AP)	0	0	
San Angelo (AP)	0	0	
San Antonio (AP)	0	0	0
Victoria	0	0	
Wichita Falls (AP)	0	0	
Waco (AP)	0	0	
UTAH			
Milford	0	0	
Salt Lake City	0	3	0
Salt Lake City (AP)	0	3	0
VERMONT			
Burlington (AP)	39	46	74
VIRGINIA			
Alexandria E.H.S.*	0	0	
Cape Henry	0	0	
Falls Church*	0	0	
Lynchburg (AP)	0	0	3
Norfolk	0	0	0
Norfolk (AP)	0	0	
Potomac Yards*	0	0	
Richmond	0	0	1
Richmond (AP)	0	0	
Roanoke (AP)	0	0	
Urbanna	0	0	
WASHINGTON			
Ellensburg (AP)	5	26	
Kelso	63	141	
North Head	197	448	480
Olympia (AP)	62	143	
Port Angeles	242	495	
Seattle	24	50	136
Seattle (AP)	25	48	
Spokane (AP)	10	37	57
Stampede Pass	231	502	
Stevenson	19	56	
Tacoma	44	100	
Tatoosh Island	280	615	596
Walla Walla	1	1	15
Yakima (AP)	2	10	25
WEST VIRGINIA			
Elkins (AP)	32	46	38
Huntington (AP)	2	2	
Parkersburg	2	2	4
Petersburg	4	10	
WISCONSIN			
Green Bay	140	190	55
La Crosse	46	53	29
La Crosse (AP)	76	96	
Madison	56	70	28
Madison (AP)	53	69	
Milwaukee	45	71	30
Milwaukee (AP)	56	87	
WYOMING			
Casper (AP)	38	73	
Cheyenne (AP)	73	158	86
Lander (AP)	24	62	70
Rock Springs	25	51	
Rock Springs (AP)	42	87	
Sheridan (AP)	34	68	
ALASKA			
Anchorage (AP)	212	462	
Annette Island (AP)	220	510	
Barrow	788	1574	
Bethel (AP)	279	543	
Cordova (AP)	340	732	
Fairbanks (AP)	221	323	
Galena (AP)	210	281	
Juneau (AP)	274	596	
Kotzebue (AP)	303	501	
McGrath (AP)	235	370	
Nome (AP)	404	789	
Northway (AP)	259	464	
St. Paul (AP)	508	1114	
Yakutat (AP)	328	697	
Umiat	437	709	
Wales	488	1003	

Data from City Office unless otherwise specified. AP indicates data from airport. * Data from cooperative stations.

Table 4

AUGUST 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Kansas, (much of State)	July and August						$200,000		Rains	Exceptionally heavy and repeated rain together with prolonged wet weather damaged roads and bridges extensively. In some cases repairs made in same places three times. Damage given is very conservatively estimated for State roads. County and township roads also needed a great deal of repair work.
Providence County, R.I.	1	1-11 p.m.					11,900		Electrical and rain	Washout damage to highways and storage basements. Electric sub-station at Warren put out of service. In Warwick 3 cows killed by lightning.
Estancia, N. Mex.	1	7 p.m.					2,000		Rains	Damage confined to buildings and stock in stores.
Brunswick County, Va.	1	7-8 p.m.					9,000		Electrical	Lightning struck a 2-story home in Cochran area, and resulting fire caused its destruction.
Magdalena, N. Mex.	2	11:30 a.m.	100	20	0	0	35,000		Tornado	Local storm damaged high school building and destroyed several homes.
Anne Arundel County, Md.	2	5 p.m.							Wind	Electric power knocked out in some communities of northern Anne Arundel County.
Cheyenne County, Kans.	2	6 p.m.	†2 1/2	23			4,000	$9,000	Hail	Path of hail damage extended from south of Haigler, Nebr., to 3 miles north of Bird City, Kans. Storm moved southeastward. Hailstones ranged in size from marbles to golf balls.
Socorro, N. Mex.	2	P.m.						6,000	do	Chiefly hay and cotton damaged,
Philadelphia, Pa.	3	1:30a.m.-12:40 p.m.			4	1			Rain, flooding, and electrical	Three persons drowned; one killed and another injured in auto-truck accident. At Weather Bureau Office 3.85 inches of rain fell with most intense downpours between 9:30 and 10:15 a.m., and 11 a.m. and noon. Frankford Creek flooded adjacent areas with as much as 8 feet of water. Sewers unable to handle runoff, and water pressure popped many manhole covers. Part of Broad Street Subway flooded, and 20 other streetcar and bus routes blocked by flood waters covering tracks, roads, and underpasses. Water in basements in nearly every section of city, with many reporting up to 2 feet of flood waters on first floors in lower sections of city. Seven autos and one truck parked in one block had water up to their tops. Refrigerators floated topsy-turvy in flooded warehouse. One street caved in. Fortunately the tide was ebbing, otherwise flooding would have been much worse. Heaviest rain since August 1919. At nearby Lansdowne, said to be worst flood in 75 years. Lightning hit a television aerial and knocked out set in one home, but no fire resulted.
Vado, N.Mex.	3	4:45 p.m.					*10,000	*	Hail	Extensive damage to cotton and cantaloupes on 400 acres.
Richey, Mont.	4	1 p.m.	†3	4				See remarks	do	Hail up to golf ball size caused locally severe damage to wheat, oats, and barley.
Willard, Mont.	4	3:30 p.m.	†1 3/4	2 1/4				20,000	Hail and rain	Very heavy hail, large marble size, caused locally severe grain damage. Correspondent reports, unofficially 4 inches of precipitation in 30 minutes.
Lane (8 miles northwest of), Mont.	4	4:30 p.m.	†2	6				10,000	Hail and wind	Hail and wind caused about 25 percent crop damage to wheat and barley.
Pasquotank County, N.C.	4	5 p.m.						7,200	Hail	Damaged area of 5 square miles.
Hagerman, Idaho	4	Afternoon						35,000	Electrical, hail, and rain	Hailstones 1/2 to 1 inch in diameter. Melon, corn, bean, and hay crops badly damaged. Crops on 170 acre ranch near total loss.
Boise, Idaho	4	Afternoon							Electrical, rain, and wind	Wind blew down some signs and awnings, and caused minor damage to power lines. Some washing of mountain roads.
Shoshone, Idaho	4							10,000	Electrical, rain, hail, and wind	Considerable damage to crops, mostly from hail and heavy rain. Temporary power failure.
Phoenix, Ariz.	4-5	8:45 p.m. 4th-2 a.m. 5th	†8	8			4,000		Electrical and wind	A series of thunderstorms swept across Phoenix. Severe electrical activity, with as many as 75 lightning strikes in metropolitan area. Power and telephone services badly disrupted. Several fires started by lightning. Estimated damage by lightning $3,200; by wind, $800.
Acushnet, Mont.	5	3 p.m.	†4	8				See remarks	Hail	Moderate damage to grains and hay.

See footnotes at end of table.

Table 4--Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Chippewa Creek, Mont.	5	3 p.m.	†2	10				$10,000	Hail	Hail, 1-inch in diameter, caused heavy damage to grains and gardens.
Belgrade, Mont.	5	3:50 p.m.	†1	5				See remarks	do	Hail, about diameter of dime, caused about 20 per nt damage to crops.
Highwood, Mont.	5	Mid-afternoon	†1-3	10			$5,000	40,000	do	Windows broken. Roofs damaged. Wheat and barley completely destroyed in small area.
Sedgwick (14 miles south of), Colo.	5	4:30-6p.m.	†3	5	0	0	50,000	100,000	Tornado and hail	A moderate tornado, accompanied by heavy hail, mo d eastward. Crops and farm buildings damaged. Ha s ranged in size from hens' eggs to baseballs.
Kolin (6 miles north of), Mont.	5	5:30 p.m.	†6	20				100,000	Hail	Hail, size of peas to hens' eggs, caused severe da ge to wheat and barley.
Loma, Mont.	5	5:30 p.m.							Wind	High wind damaged trees extensively, and reduced visibility to 30 feet.
Three Forks, Mont.	5	Afternoon	†2					500	Hail	Slight damage to grains.
Fife (3 miles northeast of), Mont.	5	6:30 p.m.	†2					See remarks	do	Moderate hail caused up to 50 percent damage in s e fields.
Trail and vicinity, Minn.	6	11 a.m.	†1	3 ½2				8,000	do	Heavy hail that accompanied a severe thunderstorm caused considerable damage to growing crops. So fields of grain and corn total loss.
Emporia, Va.	6	3:30 p.m.					2,750		Wind	Side wall of hanger at Emporia, Greensville Count Airport blown down.
Rawlins County, Kans.	6	Afternoon			0	0		12,000	Hail and tornado	Storm moved eastward across northern portion of c nt beginning about 12 miles north of Atwood and end g north of Ludell. Some hail, size of hens' eggs larger, ruined many feed crops. Farm homes, ba , granaries, church, and school house damaged by ha
Finney County, Kans.	6	Late afternoon			0	0			Tornado	Tornado apparently struck only a single farm abou 6 miles east of Garden City, ripping off roof. Wind speed reached 82 m.p.h. at Garden City.
Hertford County, N.C.	6	6 p.m.					1,000	7,000	Hail	Damaged area of 2 square miles.
Gove County, Kans.	6	6:30-8:40 p.m.	†14	30	0	0	200,000	150,000	Tornado, hail, wind, and rain	Most damage in north-central part of county. Tor do moved from Grinell eastward to Grainfield. High winds over most of northern part of county. Cro damaged by hail, high winds, and heavy rain. Bu d- ings damaged, power and telephone lines almost d stroyed, trees broken, and some cars and trucks l over by tornado. Many window lights broken.
Eden, Idaho	7				1				Electrical	One man struck by lightning, 5 miles north of Ede
Fort Wayne, Ind.	7						2,000		Dust devil	Day clear and calm when a dust devil in near-dow ow section of city severely damaged roof and sheet- metal siding on garage.
Springfield and vicinity, Mo.	8	1 a.m.		2	0	0	*500	*	Tornado	Limbs torn from trees; electric and telephone wir s blown down, and numerous outhouses unroofed.
Ogallala (southwest of), Keith County, Nebr.	8	3-4 p.m.	†2-3				Little	10,000	Hail	Corn and alfalfa damaged in valleys.
Deschutes County (to north of Bend), Oreg.	8	3-7 p.m.	†3	8			2,600	10,000	Rain, hail, and electrical	One of heaviest storms of its kind ever to occur Bend. An inch of rain fell in 22 minutes at pe of storm and total of 1.62 inches fell during the rm to set new August 24-hour total. Considerable oun of relatively large but soft hailstones fell du ng forepart of storm. Rain fell faster than sewer nd drains could carry away. Many basements floode ne lawns washed out, and many roads seriously erod large number of young turkeys killed and consid abl damage done to crops, particularly potatoes, al fa and gardens. Numerous forest fires started by ht- ning. Estimates of damage, 90 percent by hail, pe cent by rain, and 5 percent by lightning.

See footnotes at end of table.

able 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
rkansas, southeast-ern portion.	8	Evening			1			Negligible	Electrical, wind and hail	Thunderstorms over wide area, accompanied locally by severe lightning, high winds, and some light hail. Principal damage from lightning. At Ladywood one man killed when lightning struck a tree under which he was standing. At Monticello, lightning struck Ridgeway Hotel, damaging roof. At Dermott lightning struck a warehouse, causing some damage. Scattered reports of wind damage to small buildings. Crop damage negligible.
uperior-Solon Springs area, Wis.	8	Night				1	$10,000		Wind	Damage to trees and telephone and electric lines. Wind gusts reached 70 m.p.h.
exington (northeast of), Dawson County, Nebr.	8	10:30 p.m. to mid-night	†1-3	6-8			Little	$500,000	Hail	Severe damage to corn, alfalfa, and sugarbeets. Some windowpanes broken.
nna Maria Island, Manatee County, Fla.	8						2,000		Rain and wind	Rainfall of 7 inches. Wind damaged 2 airplanes at mid-island airport, by flipping one over on top of another.
iami-Holly-wood area, Fla.	8						5,000	Minor	Electrical and hail	Apartment house struck by lightning at Miami Beach. Instrument landing equipment at International Airport knocked out, and power disrupted in Miami and Holly-wood. Telephone service crippled.
oore (near), Mont.	9	4 p.m.	†2	4 1/2			100	7,000	do	Marble-sized hail caused considerable damage to wheat and barley. Lightning damaged a barn.
elgrade, Mont.	9	Afternoon	†1	5				See remarks	Hail	Light to moderate crop damage.
aswell County, N.C.	9	5 p.m.						5,100	do	Damaged area of 3 square miles.
arinette-Peshtigo area, Wis.	9	5:30 p.m.	†2	8			5,000	1,000	Rain, wind, and hail	Heavy rain and high wind disrupted electric and telephone lines. Considerable hail fell in Marinette and vicinity.
arkersburg-Wood County Airport, W. Va.	9	5:55 p.m.			0	0	0	0	Tornado	Small tornado cloud, visible first to south-southeast of station; moved northeastward.
lm (10 miles southeast of), Mont.	9	6:30 p.m.						See remarks	Hail	Locally severe damage to wheat and alfalfa in small areas by hail 1/2 inch in diameter.
reat Falls, Mont.	9	7:30 p.m.	†10	20				150,000	Hail and rain	Hail up to 1/2 inch in diameter caused moderate damage to wheat over a large area. Many telephone and power failures. Some basements flooded.
rystal River, Fla.	9	P.m.			1		Minor		Electrical	Small boat carrying fishing party of 4 persons struck. One man killed, boat caught fire, but remaining 3 persons able to swim about 500 yards to shore.
evere, Minn.	10	6 a.m.							do	Seven storage tanks, a garage, and about 20,000 gallons of gasoline, distillate, and oil at Revere Cooperative Oil Company destroyed by fire which was believed started by a bolt of lightning.
ibaux (5 miles north-east of), Mont.	10	7 a.m.	†1	3				20,000	Hail	Considerable damage to wheat and corn.
owa, (north-central portion).	10	8:35-9:30 a.m.						125,000	Wind, hail, and rain	In Hancock County, a 2-mile belt from Miller and 1 mile west of Highway 69 reported severe hail, ranging from marble-size down to peas. Corn and soybean damage 10 to 100 percent in this area, with total loss estimated at $25,000 to crops; hail damage 50 percent, wind about 25 percent. In Cerro Gordo County, hail struck near Burchinal and cut a swath about 1 1/2 miles wide and 12 miles long. At Clear Lake 2 inches of rain fell in 40 minutes, and the wind damaged docks, tipped over boats, and blew limbs from trees. Crop damage in Cerro Gordo County estimated at $100,000.
roadview, Mont.	10	3:30 p.m.						See remarks	Hail	Hail damage to winter wheat ranged from slight to severe.
olt (near), Mont.	10	3:30 p.m.	†1					See remarks	do	Hail up to walnut-size caused considerable damage to grain crops.
our Corners, Wyo.	10	7 p.m.	†1	25				12,500	do	Damage on 500 acres of farm land.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Gays Mills (west of), Crawford County, Wis.	11	12:30 p.m.						$5,000	Hail	Damage to crops, mainly corn and tobacco.
Moore (3 miles west of), Mont.	11	1 p.m.	880	1 1/2				10,000	do	Pea to marble-sized hail caused severe wheat damage
Eloy and vicinity, Ariz.	11	2:15-3p.m.	†5	20			$1,000	90,000	Hail, wind, and rain	Hail and heavy wind damaged much cotton, with torrential rains adding to widespread damage. Poles blown over between Eloy and Picacho. Winds unroof several buildings. Rainfall in Eloy totaled 1.50 inches during 45-minute period. Damage by hail, $60,000; rain, $15,000; wind $16,000.
Globe, Ariz.	11	3-5:30 p.m.	†5	15			500		Rain and flash flood	Flash floods due to heavy thundershowers in Pinal Mountains flooded Pinal Creek. One automobile cau in flood; some poultry losses; considerable rain age to dwellings. Rain damage $200; flooding dam $300.
Wake County, N.C.	11	4:30 p.m.						19,000	Hail	Damaged area of 1/2 square mile.
York Springs, Pa.	11	Afternoon					35,000	See remarks	Electrical	Lightning struck and fired large barn 2 miles nort east of York Springs, burning it to ground, and de stroying two silos, one chicken house, a milk hou milking equipment, and two wagons. An unestimate loss suffered when crops in barn burned.
Galena, Md.	11	6 p.m.	1,760	6	0	0	3,000	1,000	Tornado	Some crops in area laid low, and three houses seve damaged by falling trees. Many residents without electricity for 24 hours. Roof of cattle barn bl off. Parked car damaged by falling tree. Hailst size of small peas, but caused no damage. Cloud peared quite suddenly. It was very black with or tinge through center. Storm lasted less than 25 minutes.
Rockingham County, N.C.	11	6:30 p.m.					500	12,000	Hail	Damaged area of 2 square miles.
Columbia, S.C.	11	7 p.m.			1				Electrical	Death caused by lightning.
Phillips County, Kans.	11-12	Late night							Hail and rain	A local deluge 10 miles south-southeast of Phillip accompanied by hail caused considerable crop dama and washing of fields. Auto swept from road by w running off field.
Robeson County, N.C.	13	7 p.m.						4,500	Hail	Damaged area of 5 square miles.
Lake Apopka, Fla.	13		20	3			0	0	Water-spout, wind, and rain	Moved northward. Followed by strong winds and an hour's hard rain.
Winnebago and Hancock Counties, Iowa	14	6 p.m.	†1/2-2	20				250,000	Hail	Severe hail beginning 2 or 3 miles southeast of Thompson and extending in a southeastward and so direction into Hancock County. Loss to growing and soybeans ran close to 100 percent in stricke area. The intense hail covered ground and range size from walnuts to a few as large as golf ball Through entire path cornstalks and soybean plant found to be stripped clean of leaves.
Hawaiian Islands	14-15				1				Wind	Strong winds in connection with small tropical st that passed northeast of Islands caused damage, in coastal areas, to trees, buildings, and telep and power lines. One person electrocuted by liv
Three Lakes (near), Wis.	15	3:15 p.m.						15,000	Hail	Cranberry crop damaged.
Porterfield (near), Marinette County, Wis.	15	6 p.m.						3,000	do	Some stones as large as golf balls.
Waimea, Island of Kauai, Hawaii	15 and 17	A.m.-15th p.m.-17th							Rain	Streets flooded; mud and debris swept into homes stores. Approximately 400 residents temporarily evacuated homes for higher ground.
Titusville, Pa.	16	2 p.m.							Electrical	Lightning knocked out several transformers near town and burned out fuses on the REA line into County. One tree stripped of much of its bark, ing limbs knocked down seven telephone lines.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Tillmar and vicinity, Minn.	16	3:30 p.m.					$1,100	$24,000	Hail	Light to heavy hail that accompanied severe thunderstorm caused considerable damage to property and growing crops.
Iergland, Mich.	16	8 p.m.					30,000		Electrical wind, and rain	High winds toppled trees, knocked over chimneys, and blew down utility lines and grandstand.
Iobile, Ala.	16						500		Thunder-squall	Two filling stations and a store damaged. Several trees uprooted. Storm on Moffatt Road in outskirts of city.
Hartselle (near), Ala.	16				2		100		Electrical	Lightning killed two persons in storm cellar.
Brilliant, Ala.	16				2				do	Two men killed who had taken shelter from rain under a tree.
Greensboro, Ala.	16				1		10		do	Man killed when lightning struck a tree close to car shed under which he had taken shelter.
Loorefield (near), Nebr.	17	4 p.m.	†2-3	20			Light	Heavy	Hail	Corn and sorghums severly damaged; much set back so maturity before frost is doubtful.
Muncie, Ind.	17	11:25 p.m.					500		Electrical	Large stone weighing several hundred pounds, that was knocked loose from church tower by lightning, ripped hole in roof.
Putnam County, Ohio	18	2 a.m.							do	Barn, 5 miles west of Columbus Grove, struck by lightning and destroyed.
Westmoreland County, Pa.	18	3 p.m.					30,000		do	Lightning damaged a chimney to extent of $200, and fired haystack in Latrobe area. Lightning struck and fired church in Greensburg, causing an estimated $10,000 damage. Falling brick and stone caused unestimated damage to adjacent public school building. Power service disrupted for about an hour when an insulator failed. Lightning struck and destroyed barn and its contents valued at $9,000 in Mount Pleasant. At least two other houses struck, minor damage resulting.
Bennington, Vt.	18	5-7 p.m.				2	100,000		Rain	Roaring Branch and Walloomsac Rivers flooded northeast section of city after tearing out concrete dike that was under construction as flood-control project. Fifty feet of railroad embankment washed away.
Peabody, Mass.	18	6-7 p.m.					7,000		Electrical	Lightning destroyed hay-filled barn.
Sherman County (northern portion), Nebr.	18	8-10 p.m.	†10	20			4,000	30,000	Hail	Corn destroyed over considerable area. Many cattle badly bruised. Roof and window damage severe.
Garden County (southern portion), Nebr.	18	10:30 p.m.	†10	30			12,000	30,000	Hail, wind, and rain	Bridge washed out. Falling trees damaged cars and wires severely. Some pigs and turkeys killed.
Stark County, Ohio	18							See remarks	Hail	Damage to garden truck in Hartville area.
Wellsboro, Pa.	18-19	1:30 p.m. 18th - 1 p.m. 19th					See remarks	See remarks	Rain	Observer measured 4.32 inches from 1:30 to 7 p.m., 18th; total, 6.33 inches in 23½ hours. The deluge of rain put phone and power circuits out of order, and floated mud and debris onto streets. Cellars flooded. Farm lands along Marsh Creek heavily flooded, damaging crops.
Baltimore and suburbs, Md.	19	7 p.m.					*8,000	*	Electrical and Wind	Three houses and a barn struck by lightning. The barn burned to ground, loss of barn plus stored crops estimated at $5,000. One house damaged considerably when part of roof and some shingles on side of house ripped off. Partly constructed house struck by lightning, with damage to wiring. A third house set afire, but blaze put out before much damage occurred. Tree fell across parked automobile doing considerable damage.
Valley County (southern portion), Nebr.	19	8-9 p.m.	†2½	14			Small	45,000	Hail	Corn defoliated, and cannot revive in time to mature before frost.
Perry County, Pa.	19-20							See remarks	Rain	Newport observer measured 4.24 inches of rain from 7 p.m. to 7 a.m.; total, 6.36 inches in 24 hours. Bulk of rain fell between 10 p.m., 19th and 1 a.m., 20th. Heavy rains affected area east of Loysville to Newport, and south of Tuscarora Mountain to and including Sherman's Valley. Small outbuildings floated off foundations, private bridges washed away, and road banks including sod severely eroded, with debris 2 to 3 feet deep on some roads. Some crop damage from washing.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Smithfield, R. I.	20	All day					$6,000		Electrical and rain	Lightning struck a one-story fireworks plant which blew up. Local flood damage.
New Jersey (southern coastline, mainly in vicinity of Brigantine).	20	1:19 p.m.	100				1,000		Hurricane	Storm moved in a sweeping arc from approximately latitude 25°, longitude 64°, at 12:30 p.m. on 17th, to latitude 43°, longitude 64°, at 12:30 p.m. on 21st, passing just east of Atlantic Seaboard. Center about 175 to 200 miles east of coastline on 20th. Damage caused by high tides and accompanying towering waves which destroyed cottage porches. Heavy rains caused flood conditions at some coastal towns and cities, but little permanent damage resulted.
Massachusetts Coast	20–21				2				do	Heavy surf, induced by hurricane swell, cost two bathers lives at Duxbury and Plymouth.
Artesia, N. Mex.	21	3:15 p.m.							Wind	Some slight damage to planes at municipal airport.
Union County, N.C.	21	3:30 p.m.						$3,400	Hail	Damaged area of 2½ square miles.
Davidson County, N.C.	21	4 p.m.						4,350	do	Damaged area of 3 square miles.
Wilkes County, N.C.	21	6 p.m.						5,200	do	
Forsyth County, N.C.	21	8 p.m.						100,000	do	
Yadkin County, N.C.	21	8:30 p.m.					12,000	450,000	do	Damaged area of 30 square miles.
Wichita Falls, Tex.	21	10–11 p.m.					500		do	Automobile windshields broken.
Antigua, British West Indies	21	Night							Hurricane	Winds from 90 to 120 m.p.h. as hurricane passed over island. Roofs blown off several sugar warehouses, trees uprooted, some power and telephone lines broken, and 40 or more homes flattened.
Barbados, British West Indies	21								Easterly wave	Heavy rains and some flooding caused minor damage due to effects of southern part of easterly wave with which hurricane was associated.
Quanah, Hardeman County, Tex.	22	12:01 a.m.					8,000	75,000	Hail	About 500 bales of cotton lost; 30 head of cattle killed; cars badly damaged.
Fort Worth, Tex.	22	2:44 a.m.					200,000		Electrical	Oil tank fired.
Dallas, Tex.	22	3:30 a.m.					8,500		do	Three houses damaged.
Longview, Cowlitz County, Wash.	22	Noon to 6 p.m.					Large		Electrical and rain	Some damage to electrical equipment and transmission lines connecting with power substation at Ariel m.
Ariel Dam, Cowlitz County, Wash.	22	4–5 p.m.					2,000		do	Violent thunder and rainstorm damaged electrical equipment at local substation of Public Utility District. Other damage to transmission lines, etc., not estimated, but believed much smaller.
Virgin Islands	22						Minor	Minor	Hurricane	Virgin Islands and Puerto Rico, experienced very minor damages from the wind and rain that occurred in connection with tropical disturbance which degenerated into an area of squally weather. Damages consisted of a few broken electric and telephone lines, torn awnings, and broken neon signs.
Puerto Rico	22–23						Minor	Minor	Easterly wave	Heavy rains in some sections of Puerto Rico delayed farm work and construction projects. Some small streams reached flood stage. See remarks on Virgin Island's storm on 22d.
Washington, D.C.	23	12:35–5:10 p.m.							Rain	Homes, business properties, and automobiles damaged by flood waters. Damage more extensive in southeast section. Homes flooded in sections of near by Maryland and Virginia. A recording gage of D. C. Sewer Department indicated that 5.80 inches of rain fell between 3:00 p.m. and 5:10 p.m.
Chino Valley, Ariz.	23	1–2 p.m.						8,700	Hail	Hail damage to pinto bean crop about $8,700.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
ranklin (vicinity of), Minn.	23	P.m.					$3,000		Electrical	A large barn destroyed by fire believed started by bolt of lightning.
lmyra, Ark.	24	3:45 a.m.	200	5		7	15,000	$3,500	Tornado	Storm moved northeastward across southwestern and central sections of town. One home, two barns, three garages, and several outbuildings damaged. About 10 acres of rice ready for harvest destroyed. Some hay and lespedeza damaged.
litchcock County (northeastern portion) and Hayes County (southern portion), Nebr.	24	4 p.m.	† 2	13					Hail	All corn in area ruined. Sorghums severely damaged.
lolt (near), Mont.	25	3:30 p.m.	† 5					See remarks	do	Hail up to 1 inch in diameter caused 15 to 20 percent shatter-damage to grain crops.
lorrill County and Scottsbluff County (eastern portion), Nebr.	25	3:30 p.m.–to evening	† 2–5	35			60,000	50,000	Hail and rain	Several bridges washed out. Part of storm area intensively cultivated, and many crops total loss.
dalia, Colo.	25	5–7:30 p.m.	† 8	20			1,000	4,000	Wind and hail	Storm resembled tornado without funnel. Wind speed between 50 and 65 m.p.h. with hail limited to the northern portion of the area. Limbs torn from trees, and crops blown from ground. Hail damage comparatively light.
rontier County (northeastern portion), Nebr.	25	7:30–7:45 p.m.	† 2	30			10,000	100,000	do	Corn stripped and ears broken off. Sorghum crops total loss. Roofs badly damaged.
lodgeman County, Kans.	26	11 a.m.			0	0	0	0	Tornado	Pilot reported seeing a tornado cloud 25 miles northwest of Dodge City. Did not reach ground.
ocky Ford, Colo.	26	3–5 p.m.	† 2	8				30,000	Hail	Storm occurred in moderately farmed area, with hailstones from 1/4 to 1 2 inch in diameter. Damage mostly to row crops in northern portion of storm area.
as Animas, Colo.	26	3–5 p.m.	† 2	3				18,000	Wind, hail, and rain	Storm, apparently same that struck Rocky Ford same afternoon, did considerable damage. Vine crops suffered most where hail mixed with windswept rain. An irrigation canal overflowed and caused some crop damage.
louston, Tex.	27	2 p.m.					10,000		Wind	Damage at Playland Park, 6 miles south-southwest of business area.
ranby, Mo.	28	Early a.m.					Little	None	Electrical	Several houses struck by lightning.
laskell County, Kans.	28	2 p.m.		7	0	0	0	0	Tornado	Tornado sighted from 5 miles northeast of Sublette to 2 miles southeast of town. Dropped to ground only once just before dissipating.
yer Ranch, Colo.	28	2 p.m.	880	1				500	Hail	Storm of limited intensity, with hailstones 3/4 inch in diameter and soft in texture. Damage mostly to corn and shocked wheat.
erryton, Ochiltree County, Tex.	28	6 p.m.	† 4	8			Severe		do	Maize crop laid bare, which would have yielded about 60 bushels per acre.
liagara, N.Y.	28						40,000		Electrical	Two barns, fired by lightning, burned with contents.
almore, N.Y.	28						10,000		do	Barn, fired by lightning, burned with contents and livestock.
oylestown, Pa.	29	3–7 p.m.		1	0	0			Tornado, rain, and electrical	Falling trees in Solebury area tore down power and phone lines. Heavy rain and high winds bent corn to ground in many nearby fields. In Richboro area, a tornado reported along a path a mile in length, ripping portions of roofs from farm buildings, twisting a silo, twisting rafters on a house under construction, and twisting several large trees. Spotty heavy rain sent small streams over their banks. Several utility poles struck by lightning.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Shelbyville, Ky.	29	1:15 p.m.			1	2			Electrical	Fatality and injuries caused by lightning strike.
Durham and Peterboro, N.H.	29	6–8 p.m.							Electrical and rain	Several buildings and power lines damaged by lightning.
Rockland, Maine	29	6–12 p.m.					Minor		do	Several buildings damaged by lightning. Some highways washed out.
North Platte and vicinity, Nebr.	29	6:15–6:43 p.m.	†2	12–13			$240,000	$60,000	Hail	Principal damage to roofs, windows, awnings, and neon signs.
Louisville and Jefferson County, Ky.	29	Evening							Rain	Basements and streets flooded, with traffic disrupt
Bennington, Vt.	29 and 31	Nearly all of each day					20,000		do	Walloomsac River again sent flood water into City. Railroad trestle repaired after undermining of l was again washed out, stopping all rail service.
Springfield, Mass.	30	4–9 a.m.					5,000		Electrical and rain	Twenty houses struck by lightning. Streets flood
Alabama, entire State	30	Afternoon and evening			1	2	500,000	1,500,000	Hurricane	Center of storm moved northward from Gulf through Alabama, near Mississippi border. Considerable roof and miscellaneous damage to houses and othe buildings in Monroe County. Damage progressively lighter eastward and northward; no damage in eas border counties and extreme north. Some slight damage to most houses in Frisco City, Monroe Cou but farther south where building designers are w conscious, little general damage to buildings. Limit of area in which roof damage occurred incl southwestern one-fourth of State. Some uprooted trees over an area including about one-half of r mainder of State and extended to within 50 or 60 miles of Georgia line and about 100 miles of Tennessee line. Damage heavy in Birmingham area however, due to topographic effect on air floor.
Apalachicola, Fla.	30	5–5:10 p.m.	50	††900	0	0	35,000		Tornado	Tornado moved northwestward in northeastern quadr of hurricane, damaging 23 homes. Reported as a waterspout that came ashore.
Carlisle, Pa.	30	Evening					10,000		Electrical	Barn 9 miles west of Carlisle struck by lightning Resulting fire destroyed barn, hay, grain, seed, and farm equipment stored in it.
Pottsville, Pa.	30				2				do	Lightning bolt traveled 430 feet along an underg d wire and exploded five charges of dynamite, kill 2 miners.
Philadelphia, Pa.	30				1				do	Youth, playing baseball in school yard, killed by lightning.
Florida, (northwestern portion), Franklin County, and all of Flor west of Apalachicola River	30–31	11 p.m. 30th					409,000	100,000	Hurricane	Center passed inland between Mobile, Ala. and Pen ol Fla., moving north northeastward. Wind reached m.p.h. night of 30th at Santa Rosa Island south Pensacola. At Pensacola lowest sea-level pressu was 29.27 inches at 10 p.m., 30th, and maximum w speed 42 m.p.h. from southeast at 8:48 to 8:53 p 30th.
Frederick, Md.	30–31	P.m.					•10,000	•	Electrical	Lightning struck two barns. One damaged slightly The other destroyed completely; loss including stored crops estimated at $10,000.
Harford County, Md.	30–31	P.m.							Rain and wind	Heavy rain and high winds disrupted traffic, pull down wires and trees, and flooded sections of hi ways in area of Bel Air and Darlington.
Henderson, Ky.	30–31							100,000	do	Heavy rains and strong winds, caused by remains o tropical storm, resulted in excessive damages.
Jackson County, Fla.	31	Early a.m.			0	0	6,000		Tornado	Tornado occurred in northeastern quadrant of hurr ane. One home and one other building destroyed; one h and two other buildings damaged.
Columbia, S.C.	31	1:25 p.m.					500		Electrical	Damage to building and personal property by fire m lightning.
Tennessee, (western portion).	31	During day					30,000	30,000	Wind and rain	Dying tropical storm moved into south-central Ten see on morning of 31st. It traveled northwestward State with resultant wind and minor flood damage along path.

See footnotes at end of table.

PRELIMINARY TOTALS BY STORM TYPES FOR AUGUST 1950

Type	Deaths	Injuries	Damage
Tornado	0	7	$ 386,000
Wind, other than Hurricanes and Tornadoes	1	1	318,550
Hail			2,816,390
Electrical	13	2	390,440
Rain and Floods	4	3	572,630
Hurricane	3	2	2,510,000
Total	21	15	$6,994,010

† Miles instead of yards.
†† Yards instead of miles.
* Crop damage included with other property damage.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS
AUGUST 1950

The most important flooding during August occurred in the Missouri Basin. Severe flash floods were reported in Pebble Creek at Dodge, Nebr. The highest stage since 1941 was reached on the Solomon River at Beloit, Kans. A near record stage was reached on the North Fork of the Solomon at Kirwin, Kans. In the Arkansas Basin serious overflows occurred from the smaller tributaries in the Great Bend and Hutchinson, Kans., areas. Along the Atlantic Slope, the second highest flood of record was reported on the Walloomsac at North Bennington, Vt. Other overflows were mostly light.

ATLANTIC SLOPE DRAINAGE.--Unusually heavy rainfall on Aug. 31 and Sept. 1 caused minor flooding along the Hoosic River in eastern New York. The flooding along some of the mountain tributaries, especially the Walloomsac at North Bennington, Vt., on August 31st, was the second highest of record. Flooding along this stream on August 18th was the fourth highest of record and was due to heavy rains in vicinity of Bald Mountain. Five to seven inches of rain fell over the headwaters of the Walloomsac during the second storm. Minor damages resulted along the Hoosic River.

Heavy rains on the 19th and 23d caused local flooding in the Washington, D. C., area. The heaviest rain reported in the Metropolitan area during the first storm totalled 5.3 inches at the 1st and O Streets, S. E. gage site and during the second storm, 5.8 inches of rain was measured at the same gage. Considerable flooding occurred in the Southeast section of the city during the second storm. Several cars were totally submerged and several people had to be rescued. One man died of a heart attack after rescuing a small girl from the first floor of her flooded home. There was no flooding along the main stem of the Potomac.

EAST GULF OF MEXICO DRAINAGE.--Heavy showers occurred over the headwaters of the Pearl and Pascagoula Rivers during the last week of July causing rising stages with some flooding on the Pearl River at Jackson, Miss., during the first three days of the month. No damage resulted.

UPPER MISSISSIPPI BASIN.--The Rock River receded below flood stage on the 1st after having been slightly above flood stage for 9 days. This light overflow was due to heavy rains over the headwaters. No damage resulted.

Light flooding occurred along the Meramec River near the middle of the month due to heavy rains on the 14th and 16th. No damage resulted.

MISSOURI BASIN.--Heavy rains of 2 to 5 inches over portions of the Elkhorn Valley on the 12th caused serious flash floods at Dodge, Nebr., and light flooding along the Elkhorn River between Norfolk and West Point, Nebr. Torrential rains developed in the Dodge area during the late evening of the 11th and early morning hours of the 12th. Rainfall totalled 4.05 inches at Dodge and 4.62 inches 5 miles northwest of the city. Flooding began shortly after midnight on the 12th along Pebble Creek in the western portion of Dodge. Overflow in the lower part of Dodge continued until the early forenoon of the 12th. Six residences were flooded, streets were damaged, and approximately 640 acres of farm land were inundated. Some damage resulted to railroad tracks and fills in the vicinity of Stanton, Nebr.

Locally severe flooding occurred in Kansas and Nebraska along the Osage, Saline, Solomon and Republican Rivers. Minor overflows occurred on the Little Blue, the lower Republican, Smoky Hill and the upper Kansas Rivers. The highest stage since 1941 was reached on the Solomon River at Beloit, Kans., on the 15th when a crest of 33.3 feet (15 feet above flood stage) was reached. At Kirwin, Kans., the North Fork of the Solomon reached near record heights with a crest of 22.4 feet on the 12th. Crests on the Osage River were generally 4 to 5 feet above bankfull. Heavy rains of 3 to 8 inches on the 7th caused considerable local high water along the upper Saline River from Grinnell to Grainfield. Damages were generally greater on the upper tributaries, where heavy rains caused considerable flooding.

Heavy rains (averaging about 3 inches) fell during the afternoon and evening of the 8th over the Nemaha, Nodaway, One Hundred and Two, Platte, Thompson and Upper Grand River Basins causing these streams to rise to bankfull or near bankfull stage. Additional rain from the 12th to the 16th caused another rise, several of these streams plus the Osage and the lower Missouri exceeding flood stage. The rainfall during this 5-day period averaged 4.36 inches over northeastern Kansas, northwestern Missouri and southeastern Nebraska with variable moderate to heavy amounts over eastern Nebraska and Kansas, western Iowa and nearly all of Missouri. No damages resulted from the flooding.

ARKANSAS BASIN.--Heavy rains west of Trinidad, Colo., on the 2d caused the Purgatoire River to rise to above bankfull stage at Trinidad causing extensive damage to railroad and highway bridges in the Valdez-Segundo area. Three railroad bridges west of the Segundo coal mining camp were damaged and the C&W railroad tracks were undermined. In Trinidad, the main line of the Santa Fe Railroad was inundated to a depth of 6 inches; basements in the lower industrial district were flooded.

Excessively heavy rains occurred in the Arkansas Basin for the second consecutive month but the amounts were less during July. Serious overflows occurred from the smaller tributaries in the Great Bend and Hutchinson, Kans., areas. No new crest stages were established, but both cities reported the most severe flooding on record from the smaller streams. Over a hundred homes were flooded in both cities. Fifty-four families were evacuated in the Great Bend area. Sand bagging in the Hutchinson area prevented considerable damage. Only minor damage resulted from the overflow of the main stem of the Arkansas in the southern section of Great Bend and Hutchinson. Only minor flooding occurred along other tributaries in the Arkansas Basin except along the Cimarron at Perkins, Okla. However, the crest of 13.5 feet was lower than the crest that occurred a few days earlier in July so no additional damage resulted. Flooding along the main stem of the Arkansas was mostly light.

RED BASIN.--Minor flooding occurred along the Little River due to heavy thundershowers (2.95 inches) on July 29th. Additional heavy rains (1.7 inches) on Aug. 1 kept the stage near 25.5 feet from the 2d to the 6th. It receded to within its banks on the 7th.

WEST GULF OF MEXICO DRAINAGE.--The flooding along the Sabine River at Mineola, Tex., during the first 6 days of August was due to heavy showers during the last 3 days of July.

The East Fork of the Trinity River began overflowing its banks near Rockwall, Tex., on the last day of the month.

FLOOD STAGE DATA

(All dates in August unless otherwise specified)

Table 5

AUGUST 1950

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
EAST GULF OF MEXICO DRAINAGE	Ft.			Ft.	
Pearl: Jackson, Miss.	18	1	3	18.4	2
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Rock: Moline, Ill.	10	July 23	1	10.4	July 27-31
Meramec: Pacific, Mo.	11	14	14	11.3	14
		16	16	12.1	16
Missouri Basin					
Elkhorn: West Point, Nebr.	12	14	14	12.1	14
Hackberry Creek: Gove, Kans.	14	7	7	14.1	7
Saline:					
Wilson, Kans.	12	10	10	17.0	10
		14	14	17.4	14
Tescott, Kans.	25	18	19	26.0	18-19
South Fork: Alton, Kans.	12	8	8	16.3	8
		12	14	13.4	13
				17.0	14
		27	27	13.0	27
		29	30	14.0	29
North Fork: Kirwin, Kans.	13	12	12	22.4	12
Solomon:					
Beloit, Kans.	18	8	11	23.0	10
		12	18	33.3	15
		26	Sept. 2	19.0	26
				28.1	30
Minneapolis, Kans.	26	16	20	30.7	18
Niles, Kans.	24	14	15	24.3	14
		17	22	29.1	19-20
Smoky Hill:					
Abilene, Kans.	22	20	22	25.2	22
Enterprise, Kans.	26	21	23	27.5	22
North Fork: Benkelman, Nebr.	5	2	3	6.0	2-3
		9	9	5.0	[illegible]
Sappa Creek: Stamford, Nebr.	14	8	9	17.5	[illegible]
Prairie Dog Creek: Norton, Kans.	17	12	12	17.8	12
Republican:					
Cambridge, Nebr.	6	3	3	6.2	3-4
		6	7	7.2	6-7
		9	9	6.1	9
Clay Center, Kans.	15	12	14	16.6	12
Little Blue: Endicott, Nebr.	9	12	12	9.6	12
Kansas: Manhattan, Kans.	17	13	13	17.5	13
Grand:					
Pattonsburg, Mo.	20	[illegible]	8	20.0	8
		15	15	20.0	15
Chillicothe, Mo.	18	9	9	19.1	9
		15	16	19.4	15
Sumner, Mo.	25	16	16	25.0	16
Brunswick, Mo.	12	15	17	14.0	17
Lamine: Clifton City, Mo.	15	15	16	21.0	16
		30	31	19.5	31
Blackwater: Blue Lick, Mo.	25	15	15	27.5	15
		30	Sept. 3	26.6	Sept. 2
Pottawatomie Creek: Garnett, Kans.	26	12	13	29.0	12-13
Osage:					
Quenemo, Kans.	30	13	15	34.2	13
Ottawa, Kans.	24	14	16	27.7	15
Osawatomie, Kans.	28	14	18	35.6	16
		28	28	28.4	28
La Cygne, Kans.	25	15	19	30.3	18
		28	29	26.7	28-29
Trading Post, Kans.	24	16	20	26.7	20
Warsaw, Mo.	31	30	†	----	--
Lakeside (Bagnell Dam), Mo.	60	14	21	60.5	16
		30	Sept. 6	60.5	31
Missouri:					
Waverly, Mo.	18	14	16	19.4	16
Hermann, Mo.	21	16	18	22.4	17
St. Charles, Mo.	25	17	19	26.5	18
Arkansas Basin					
Cow Creek: Lyons, Kans.	18	--	3	20.0	1
		15	16	19.2	16

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft.	
Arkansas Basin (Cont'd.)					
Little Arkansas:					
Sedgwick, Kans.	18	--	5	21.8	July 31
Ripley, Kans.	12	--	1	13.9	1
Walnut:					
Augusta, Kans.	23	--	1	27.8	1
Winfield, Kans.	30	2	2	33.6	2
Arkansas City, Kans.	18	1	3	22.5	2
Cimarron:					
Perkins, Okla.	11	July 29	3	13.8	July 31
				13.5	2
Cottonwood: Emporia, Kans.	20	2	4	23.8	3
Neosho:					
Emporia, Kans.	22	1	3	26.0	2
		13	13	22.8	13
		15	15	23.2	15
Neosho Rapids, Kans.	22	2	4	23.7	3
Burlington, Kans.	27	3	4	27.0	4
Iola, Kans.	15	30	30	16.4	30
Chanute, Kans.	20	30	31	20.8	30-31
Deep Fork: Dewar, Okla.	18	July 18	5	22.2	23
North Canadian: Woodward, Okla.	5	2	3	7.0	3
Arkansas:					
Great Bend, Kans.	8	July 31	4	9.6	1
		10	18	10.0	16
		30	†	----	--
Hutchinson, Kans.	6	--	8	9.0	2
		11	20	8.1	17
Wichita, Kans.	9	--	1	10.8	1
		4	8	10.8	5
Oxford, Kans.	14	1	2	15.0	1
Arkansas City, Kans.	16	--	4	19.8	2
		6	6	16.5	6
Ralston, Okla.	16	3	5	17.8	4
Webbers Falls, Okla.	23	1	6	24.8	3
Fort Smith, Ark.	22	2	7	23.8	4
Van Buren, Ark.	22	July 30	July 31	23.3	July 30
		1	7	24.8	4
Dardanelle, Ark.	22	3	7	24.1	6
Red Basin					
Little: Whitecliffs, Ark.	25	2	7	25.6	5
WEST GULF OF MEXICO DRAINAGE					
Sabine: Mineola, Tex.	14	1	6	16.7	4

* Provisional.
† Continued at end of month.

GENERAL SUMMARY OF FLOOD LOSSES FOR 1948*

Monetary losses from floods in the United States, estimated at $230,000,000, was slightly less than in 1947 but somewhat greater than the total for the four years from 1939 to 1942. It was slightly more than two times the National Yearly average of $111,000,000, based on the period from 1924 to 1948. It was the fifth greatest monetary loss from floods during the last 25 years, being exceeded in 1927, 1936, 1937 and 1947 . The loss in life of 82 was greater than in 1946 and 1947 but less than in 1945 when 91 lives were lost. It was slightly under the National Yearly average of 84 lives for the last 25 years. The savings resulting from the flood forecasting and warning service was reported at about $45,000,000.

The outstanding flood event of the year occurred in the Columbia Basin during May and June. It was the second greatest flood of record as to volume of water, being exceeded only by the great flood of 1894. The flood damages of $112,000,000 were approximately one-half of the total flood damages for the year 1948 over the entire country.

A major flood developed in the Ohio River from Pittsburgh to the mouth during April. This was the highest flood in the Ohio so late in the season, and the highest since March 1945. The Red River of the North experienced the highest flood in 50 years in certain sections during the ice break-up. Major flooding with record or near record stages occurred in the Upper Rio Grande from snow melt during May and June and in the Neosho River Basin in Kansas during July.

*ANNUAL FLOOD LOSSES AND SAVINGS FOR PREVIOUS YEARS HAVE BEEN PUBLISHED IN THE MONTHLY WEATHER REVIEW AS FOLLOWS:

Year	Issue of Review	Pages	Year	Issue of Review	Pages
1933	Vol. 62, No. 1, Jan. 1934	25-27	1940	Vol. 69, No. 7, July 1941	217-218
1934	Vol. 62, No. 12, Dec. 1934	465-467	1941	Vol. 71, No. 11, Nov. 1943	185-186
1935	Vol. 63, No. 12, Dec. 1935	362-365	1942 & 1943	Vol. 73, No. 8, Aug. 1945	137-139
1936	Vol. 65, No. 1, Jan. 1937	28-31	1944 & 1945	Vol. 76, No. 6, June 1948	113-116
1937	Vol. 66, No. 12, Dec. 1938	426-430	1946	Vol. 76, No. 9, Sept. 1948	208-210
1938	Vol. 68, No. 9, Sept. 1940	262-263	1947	Vol. 77, No. 9, Sept. 1949	262-265
1939	Vol. 68, No. 11, No. 1940	329-330			

ESTIMATED FLOOD LOSSES FOR 1948

River and drainage	Urban Property				Rural Property						Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost
	Residential		Commercial		Public	Crops		Livestock	Other		RR's, bridges, Highways, etc.	Public Utilities				
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
HUDSON BAY DRAINAGE																
Red River of North and tributaries	*$1,472,000	.....	.....	.....	.....	#$10,502,000	.....	.....	.....	.....	4,570,300	.....	$2,156,700	.....	$18,701,000	4
ST. LAWRENCE DRAINAGE																
Lake Michigan																
Kalamazoo River	351,500	.....	$125,000	$147,000	$47,000	.....	.....	.....	#$17,000	.....	.....	$2,000	45,000	.....	734,500	...
Red Cedar River	1,000	.....	2,000	4,000	.....	.....	.....	.....	.....	.....	1,000	.....	.....	.....	8,000	...
Grand River	135,500	$45,000	16,600	5,500	3,500	5,500	.....	$400	10,000	$3,000	77,500	13,800	55,600	.....	371,900	...
Total	488,000	45,000	143,600	156,500	50,500	5,500	.....	400	27,000	3,000	78,500	15,800	100,600	.....	1,114,400	4
Lake Huron																
Clinton River	15,000	.....	.....	3,500	.....	.....	.....	.....	#15,000	.....	.....	.....	8,000	.....	41,500	...
Shiawassee River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	400	$12,000	12,400	...
Cass River	7,500	.....	3,000	6,500	15,000	.....	.....	.....	.....	.....	25,000	.....	2,500	.....	59,500	...
Pine River	5,000	.....	25,000	.....	40,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	70,000	...
Saginaw River	65,000	.....	3,000	12,000	35,000	.....	.....	.....	#104,000	.....	20,000	5,000	7,000	.....	251,000	...
Total	92,500	.....	31,000	22,000	90,000	.....	.....	.....	119,000	.....	45,000	5,000	17,900	12,000	434,400	...
Lake Champlain																
East Creek (Vermont)	20,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20,000	...
ATLANTIC SLOPE DRAINAGE																
Connecticut River and tributaries	172,000	.....	241,000	.....	30,000	2,400	$400	.....	110,000	.....	390,000	9,000	737,000	.....	1,691,800	...
Housatonic River	299,000	.....	791,000	.....	141,000	... .	.....	.....	80,000	.....	853,000	75,000	1,931,000	.....	4,170,000	3
Hudson River and tributaries	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,305,000	2,305,000	...
Susquehanna River and tributaries	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,300,000	4,300,000	1
Potomac River	.....	5,200	.....	.....	15,300	.....	.....	.....	.....	.....	3,500	.....	.....	.....	24,000	...
Chickahominy River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30,000	.....	.....	.....	30,000	...
James River	.....	.....	.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....	.....	40,000	...
Cape Fear, Tar, Neuse and Roanoke Rivers	15,000	2,000	5,000	1,000	10,000	.....	.....	.....	.....	.....	5,000	.....	11,500	.....	49,500	...
Pee Dee River	.....	.....	.....	.....	.....	.....	.....	5,200	.....	.....	16,000	.....	5,000	.....	26,200	...
Saluda River	.....	.....	.....	.....	.....	1,000	.....	500	.....	.....	700	.....	....	.....	2,200	...
Broad River	.....	.....	500	.....	400	8,100	.....	1,200	1,500	.....	307,000	.....	500	.....	319,500	...
Congaree River	.....	.....	.....	.....	.....	5,500	.....	.....	.....	.....	.....	.....	10,000	.....	15,500	...
Catawba and Wateree Rivers	3,000	2,000	10,000	15,000	5,000	25,500	.....	6,100	11,000	10,000	42,800	10,000	69,600	.....	210,000	1
Savannah River	5,000	.....	.....	2,800	10,000	3,500	800	4,000	100	.....	.....	.....	7,100	.....	33,300	...
Altamaha, Oconee and Ocmulgee Rivers	34,000	300	59,000	3,000	33,000	25,000	.....	11,000	700	14,000	271,000	19,000	152,000	.....	622,000	...
Total	528,000	9,500	1,106,500	21,800	244,700	111,300	1,200	28,000	203,300	24,000	1,919,000	113,000	2,923,700	6,605,000	13,839,000	5
EAST GULF OF MEXICO DRAINAGE																
Flint River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,000	.....	6,000	...
Apalachicola River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27,000	.....	27,000	...
Choctawhatchee River	38,500	.....	.....	.....	5,000	8,300	.....	.....	.....	.....	65,000	5,000	26,000	.....	147,800	...
Conecuh River	.....	.....	.....	.....	400	40,000	.....	15,000	.....	.....	25,000	.....	.....	72,500	152,900	...
Oostanaula River	10,000	25,000	65,000	5,000	15,000	25,000	10,000	2,000	3,400	3,000	2,000	.....	68,000	.....	233,400	...
Etowah River	5,000	10,000	35,000	2,000	5,000	12,000	3,800	500	3,800	1,000	1,000	.....	33,000	.....	102,100	...
Coosa River	.....	.....	1,500	2,000	500	176,000	20,000	17,000	40,000	3,000	3,000	.....	5,500	.....	271,500	...
Tallapoosa River	.....	.....	.....	.....	.....	12,000	10,000	20,000	10,000	5,000	2,000	.....	15,000	....	74,000	...

See footnotes at end of table.

ESTIMATED FLOOD LOSSES FOR 1948—Continued

River and drainage	Urban Property					Rural Property					Other Property					
	Residential		Commercial		Public	Crops		Live-stock	Other		RR's, bridges Highways, etc.	Public Utilities	Miscellaneous	Unclassified	Total Loss	Lives Lost
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
GULF OF MEXICO DRAINAGE (Cont'd.)																
Canaba River						$8,000	$1,000	$13,600	$2,600	$3,000	$2,000		$3,000		$29,600	...
Alabama River	$25,400	$20,600	$150,000	$25,000	$25,000	60,000	40,000	140,000	30,000	35,000	20,000	$10,000	60,000		640,400	...
Black Warrior River	130,000													$160,000	290,000	...
Tombigbee River	201,200												1,000	450,000	752,200	...
Leaf River														10,900	10,900	...
Pockamawk River														43,200	43,200	...
Pascagoula River														2,000	2,000	...
Pearl River														338,800	338,800	...
Total	510,100	37,000	244,500	34,000	50,900	338,300	84,800	208,100	89,200	50,600	120,000	15,000	244,500	1,077,400	3,121,800	...
MISSISSIPPI SYSTEM																
Upper Mississippi Basin																
Minnesota-Wisconsin River	400								700		5,000				6,200	...
Rock River	4,100		100	1,500			1,500		2,200		700				9,500	...
Kickapoo River	3,700		500						4,500		5,500				14,200	...
Turkey River			500											93,000	93,500	...
Galena River														153,100	153,100	...
Maquoketa River														47,700	47,700	...
Wapsipinicon River								2,000	25,500	5,000	10,700	2,000	10,000		55,200	...
Rock and Pecatonica Rivers	2,000	1,500	35,000	50,000		11,300	1,400		13,300	300	117,500	3,100	83,000		318,400	...
Cedar and Shellrock Rivers	1,000				28,300	15,000	4,200		73,000	1,000	21,500		5,000		149,100	...
Iowa River	2,200		600		51,100	5,000			76,800	500	10,200				146,400	...
Skunk River						75,000								50,000	125,000	...
Raccoon River						10,000				†15,000			4,500	30,000	59,500	...
Des Moines River													19,200	274,100	293,300	...
Fox River										†13,100					13,100	...
Wyaconda River										†6,000					6,000	...
Fabius River										†6,500				15,000	21,500	...
Illinois River						110,000				†1,100			3,000	145,800	259,900	...
Meramec River						2,500								5,000	7,500	...
Mississippi River (Upper)						508,000	30,000	5,000		†20,700			64,500	497,500	1,125,700	...
Total	13,400	1,500	36,700	51,000	79,400	736,800	37,200	7,000	196,000	69,200	171,100	5,100	189,200	1,311,200	2,904,800	...
Missouri Basin																
Minor tributaries of Missouri River in Montana	84,300		125,700		6,200	543,700			8,300	800	1,112,600	12,900	238,200	506,900	2,638,600	...
Yellowstone River and tributaries	35,800		27,000		7,800	130,800			9,500		145,600		15,900	153,900	526,300	...
Knife River	200					300			400		500			1,100	2,500	...
Heart River	226,500		82,900		9,100	500	1,000	100	5,700		15,900	7,500	40,000	364,000	754,400	...
Cannonball River						2,100	1,300	500	3,400	500	8,700			500	17,000	...
Grand and Moreau Rivers						2,400					200			1,000	3,600	...
James River	80,300		3,700		10,000	871,200			4,400	†75,400	26,600	2,000	4,200	167,800	1,250,600	...
Big Sioux River						223,600				26,000				116,200	365,800	...
Little Sioux River						31,700								15,100	46,800	...
Loup River						37,600				†200			1,000	51,000	89,800	...

ESTIMATED FLOOD LOSSES FOR 1948—Continued

River and drainage	Urban Property				Rural Property						Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost
	Residential		Commercial		Public	Crops		Livestock	Other		RR's, bridges, Highways, etc.	Public Utilities				
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
MISSISSIPPI SYSTEM (Cont'd.)																
Missouri Basin (Cont'd.)																
Elkhorn River and tributaries						$67,700							$16,200	$43,500	$127,400	...
Platte River and tributaries	$40,100	$15,000			$79,000	310,300					$14,000	$6,000	52,400	221,800	738,600	...
Nishnabotna River						116,000				†$20,000				59,300	195,300	...
Nemaha River and tributaries						17,800			$900		4,400	600	3,400		27,100	...
Nodaway River						25,500			200		500	100	15,200		41,500	...
Platte and 102 Rivers						5,000								3,100	8,100	...
Saline River and tributaries	800		$400		23,500	664,000		$500	1,800		10,800	500	2,300	2,400	707,000	...
Solomon River and tributaries						1,720,200		1,500	14,800		68,100	2,000	5,900	2,700	1,815,200	1
Smoky Hill River and tributaries						1,447,900		300	20,100		66,900	800	17,200	65,800	1,619,000	...
Republican River and tributaries					6,000	2,342,200		1,200	18,000		274,800	1,600	3,600	38,500	2,685,900	...
Big Blue River and tributaries						914,100		5,400	38,800		117,900	266,800	17,700	368,100	1,728,800	...
Kansas River and minor tributaries	1,700		1,000		300	826,300		3,900	24,200		234,000	2,700	5,000	3,800	1,102,900	...
Grand River and tributaries						236,400			7,000		5,000		27,600	400	276,400	...
Chariton River and tributaries						80,200			3,900		5,200		5,700	1,000	96,000	...
Lamine River and tributaries						1,040,400		200	5,100		10,900		700		1,057,300	...
Osage River and tributaries	700		18,500		2,000	4,521,100		8,300	38,100		93,100	3,400	4,400	33,700	4,723,300	...
Missouri River and minor tributaries	39,900		9,000		3,100	5,156,900		3,800	28,700		1,778,000	4,200	1,762,500	58,000	8,844,100	...
Total	514,300	15,000	268,200		147,000	21,335,900	$3,200	26,000	233,300	122,900	3,993,700	311,100	2,239,100	2,279,600	31,189,300	1
Ohio Basin																
Allegheny River	121,000	14,100	193,900	$37,300	118,000	9,700		11,000	5,900	5,500	410,800		88,000	1,005,000	2,020,200	...
Tygart River	3,000										7,000			5,000	15,000	1
West Fork (West Virginia)											15,000			450,000	465,000	...
Monongahela River	5,300	7,300	252,300	2,300	64,800	1,000					9,500		2,500	120,000	465,000	...
Muskingum River						88,500								146,500	235,000	...
Hocking River														169,500	169,500	...
Kanawha River														30,500	30,500	...
White River											10,000				10,000	...
Wabash River	5,000					15,000									20,000	3
Camey Fork	3,100		10,000						16,100		13,000	3,100	6,900		52,200	...
Cumberland River														1,524,800	1,524,800	...
Elk River	8,800		38,600		1,400	12,500			23,200		64,000	500	22,900		171,900	...
Duck River	67,600		321,500		5,000	26,400			226,000		352,500	97,400	181,100		1,277,500	...
Tennessee River and minor tributaries	9,100		177,800		10,900	483,500		1,100	54,300		392,900	6,900	179,700		1,316,200	...
Ohio and Green Rivers	715,000	121,700	2,169,500	131,200	232,900	1,150,900	22,200	14,100	327,400	15,000	671,200	54,500	1,127,500	2,345,200	9,098,300	12
Total	937,900	143,100	3,163,600	170,800	433,000	1,787,500	22,200	26,200	652,900	20,500	1,945,900	162,400	1,608,600	5,796,500	16,871,100	16
White Basin																
Black River						29,200									29,200	...
White River						528,000									528,000	...
Total						557,200									557,200	...

See footnotes at end of table.

ESTIMATED FLOOD LOSSES FOR 1948—Continued

River and drainage	Urban Property				Rural Property						Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost
	Residential		Commercial		Public	Crops		Livestock	Other		RR's, bridges, Highways, etc.	Public Utilities				
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
MISSISSIPPI SYSTEM (Cont'd.)																
Arkansas Basin																
Neosho River						$5,000			$500		$10,000				$15,500	...
Canadian River and tributaries	$180,000	$60,000	$75,000	$150,000	$175,000	1,888,000	$12,000	$10,000	98,000	$25,000	600,000	$200,000	$127,000		3,600,000	11
Petit Jean River								2,000							2,000	...
Arkansas River and minor tributaries	133,400	162,100	35,700	58,000	226,000	10,938,700	274,700	23,300	569,000	175,800	1,464,000	77,900	407,700		14,546,300	3
Total	313,400	222,100	110,700	208,000	401,000	12,831,700	286,700	35,300	667,500	200,800	2,074,000	277,900	534,700		18,163,800	14
Red Basin																
Little River														$5,000	5,000	...
Sulphur River						200,000									200,000	...
Cypress River														15,000	15,000	...
Total						200,000								20,000	220,000	...
Lower Mississippi Basin																
St. Francis River						5,600		12,000	700		800				19,100	...
Yazoo, Tallahatchie and Coldwater Rivers														5,100,000	5,100,000	...
Mississippi River (Lower)	800					5,800	3,000	4,500	23,400	2,500	70,200	6,000	155,000		271,200	...
Total	800					11,400	3,000	16,500	24,100	2,500	71,000	6,000	155,000	5,100,000	5,390,300	...
WEST GULF OF MEXICO DRAINAGE																
Sabine River			50,000										500,000	700,000	1,250,000	...
Trinity River						26,000		17,400	5,700	3,000	5,500		47,100		104,700	...
Rio Hondo	182,100	40,000	22,200		250,000	9,600		100							504,000	...
Rio Grande	194,000				15,000	325,000		310,000			1,532,000	184,000	185,200		2,745,200	1
Total	376,100	40,000	72,200		265,000	360,600		327,500	5,700	3,000	1,537,500	184,000	732,300	700,000	4,603,900	1
GULF OF CALIFORNIA DRAINAGE																
Gunnison River						300							300		600	...
Animas River						500									500	...
Total						800							300		1,100	...
PACIFIC SLOPE DRAINAGE																
Sacramento Basin																
Pine, Rock, Mud and Cherokee Creeks						29,800			4,100		1,600		14,200		49,700	...
Sacramento River						200,000									200,000	...
Total						229,800			4,100		1,600		14,200		249,700	...
Coastal Drainage																
Eel River											4,500				4,500	...
Rogue and Umpqua Rivers	15,500	15,300	11,000	3,500	153,700	1,000		500	13,000	1,000	51,500	100,500	82,000		448,500	4
Total	15,500	15,300	11,000	3,500	153,700	1,000		500	13,000	1,000	56,000	100,500	82,000		453,000	4
Columbia Basin																
Powder River						68,200			2,300		2,400			1,500	74,400	...
Imnaha River						11,800			300		4,700			300	17,100	...
Salmon River	55,700		59,800		2,300	21,100		18,300	56,700	1,000	299,100	4,800		4,300	523,100	1
	9,400		9,400	9,400		568,300		101,500	32,200	25,300	181,000	12,000		22,500	971,000	...

River and drainage	Urban Property				Rural Property						Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost
	Residential		Commercial		Public	Crops		Livestock	Other		RR's, bridges, Highways, etc.	Public Utilities				
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
PACIFIC SLOPE DRAINAGE (Cont'd.)																
Columbia Basin (Cont'd.)																
Clearwater River	$473,600	.....	$1,209,300	.....	$67,600	$55,300	.....	$6,700	$38,100	$6,000	$811,900	$63,100	.....	$17,500	$2,749,100	1
Palouse River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100,000	100,000	...
Snake River	3,800	.....	60,500	.....	4,600	133,200	.....	2,400	97,500	1,500	126,300	500	.....	16,400	446,700	1
John Day River	.....	.....	.....	.....	.....	89,300	.....	700	16,400	7,500	235,000	.....	.....	4,400	353,300	3
Willamette River and tributaries	3,600,000	.....	1,100,000	.....	‡200,000	.....	.....	.....	1,100,000	.....	.....	.....	.....	4,000,000	10,000,000	6
Columbia River and minor tributaries	20,561,800	$6,704,300	4,588,100	$3,748,200	6,787,800	12,753,900	.....	780,600	2,208,300	603,700	12,447,500	1,667,900	$21,381,400	2,357,400	96,590,900	25
Total	24,704,300	6,704,300	7,027,100	3,757,600	7,062,300	13,701,100	.....	910,200	3,551,300	645,000	14,107,900	1,748,300	21,381,400	6,524,300	111,825,600	37
Grand Total	29,986,300	7,250,800	12,215,100	4,425,200	8,977,500	62,710,900	$438,300	1,585,700	5,786,900	1,141,900	30,691,500	2,944,100	32,380,200	29,426,000	229,960,400	82

* Includes all urban losses. # Includes all rural losses. † Includes livestock. ‡ Includes public utilities

RADIOSONDE DATA

Average monthly values

Table 20 — AUGUST 1

Standard pressure surface (mb)	ALBANY, N. Y. (1006 MB.)				ALBUQUERQUE, N. MEX (840 MB.)				ATLANTA, GA. (982 MB.)				BIG SPRING, TEX. (926 MB.)				BISMARCK, N. DAK (956 MB.)				BOISE, IDAHO (914 MB.)				BROWNSVILLE, TEX (1013 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	86	17.8	85	31	1,620	24.2	36	31	307	22.9	79	31	784	26.6	51	30	505	18.6	86	31	868	25.0	35	31	8	27.6	71
1,000--	31	138	18.5	80	31	51			31	348			31	92			30	112			31	61			31	120	27.0	73
950----	31	585	18.4	69	31	523			31	598	23.3	68	31	551			30	561	19.1	69	31	570			31	580	24.4	71
900----	31	1,042	15.7	68	31	1,010			31	1,068	20.4	68	31	1,032	26.8	45	30	1,024	17.9	54	31	1,001	25.7	24	31	1,017	22.3	65
850----	31	1,525	12.6	73	31	1,512			31	1,559	17.0	70	31	1,534	23.2	47	30	1,511	17.8	56	31	1,501	23.4	22	31	1,512	19.8	59
800----	31	2,030	8.7	71	31	2,044	22.2	32	31	2,074	13.7	67	31	2,060	19.2	51	30	2,021	11.5	58	31	2,025	19.1	26	31	2,062	16.6	64
750----	31	2,569	5.8	61	31	2,610	18.0	35	31	2,618	10.7	63	31	2,615	14.8	57	30	2,598	7.6	57	31	2,583	14.6	31	31	2,614	13.4	62
700----	31	3,124	2.9	50	31	3,185	13.1	40	31	3,188	7.5	60	31	3,191	10.5	55	30	3,174	3.6	60	31	3,152	9.7	35	31	3,186	9.7	61
650----	31	3,722	- 0.4	46	31	3,813	7.9	47	31	3,801	4.1	59	31	3,810	6.3	51	30	3,730	0.3	57	31	3,776	4.8	41	31	3,804	6.0	64
600----	31	4,356	- 3.9	46	31	4,457	2.4	53	31	4,442	0.4	58	31	4,456	1.8	56	30	4,357	- 3.7	53	31	4,409	- 0.2	32	30	4,419	2.4	63
550----	30	5,041	- 7.8	39	30	5,159	- 3.2	60	31	5,139	- 3.5	51	31	5,156	- 2.5	43	30	5,047	- 7.7	45	31	5,102	- 5.3	13	30	5,132	- 1.5	59
500----	30	5,774	-12.3	35	30	5,901	- 8.7	60	31	5,863	- 7.5	46	30	5,922	- 7.0	35	30	5,771	-13.2	40	31	5,810	-10.4	12	30	5,860	- 9.2	61
450----	30	6,576	-17.7	35	30	6,716	-13.8	51	31	6,702	-12.6	40	30	6,723	-12.3		30	6,582	-17.8	39	31	6,665	-16.1	19	28	6721	-11.6	63
400----	30	7,443	-23.7		30	7,596	-19.8	41	31	7,585	-18.7	40	29	7,607	-18.6		29	7,440	-24.3	39	31	7,471	-23.2	38	28	7,510	-17.5	63
350----	30	8,404	-31.1		30	8,573	-27.1	38	31	8,566	-25.5	38	29	8,588	-26.0		29	8,398	-31.9	39	31	8,479	-30.7		28	8,506	-24.5	63
300----	30	9,477	-39.4		29	9,666	-35.7		30	9,667	-33.7	40	28	9,685	-34.1		29	9,468	-38.0		31	9,553	-39.3		28	9,700	-32.8	
250----	29	10,700	-48.5		28	10,904	-45.9		30	10,918	-43.8		27	10,934	-44.1		29	10,688	-49.0		31	10,776	-48.7		28	10,957	-42.7	
200----	27	12,148	-55.2		25	12,356	-56.0		29	12,377	-55.9		26	12,392	-55.3		22	12,140	-53.4		30	12,220	-54.6		27	12,426	-54.2	
175----	25	13,002	-57.7		25	13,195	-60.8		28	13,221	-60.3		24	13,229	-61.4		22	12,997	-54.3		30	13,070	-56.5		27	13,270	-59.9	
150----	24	13,971	-58.4		23	14,145	-65.2		28	14,177	-62.0		19	14,166	-65.9		19	13,985	-55.7		28	14,048	-57.0		26	14,219	-65.7	
125----	20	15,115	-60.2		21	15,250	-67.6		26	15,277	-67.4		11	15,248	-68.1		16	15,138	-57.4		23	15,193	-59.2		26	15,343	-70.1	
100----	11	16,507	-58.5		15	16,595	-65.8		23	16,621	-65.6		3	16,341	-66.2		14	16,554	-57.1		16	16,595	-59.7		20	16,628	-70.0	
80------	11	17,914	-57.4		9	17,952	-62.5		17	17,983	-62.7		6	17,986	-62.2		9	17,967	-54.8		10	17,995	-58.8		13	17,948	-67.5	
60------									6	19,772	-59.2														8	18,697	-61.6	

Standard pressure surface (mb)	BUFFALO, N. Y. (991 MB.)				BURRWOOD, LA.* (1012 MB.)				CAMAGUEY, CUBA (1002 MB.)				CARIBOU, MAINE (893 MB.)				CHARLESTON, S. C. (1016 MB.)				CIUDAD VICTORIA, MEX. (973 MB.)				COLUMBIA, MO. (988 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	221	19.0	77	16	3	27.3	81	25	122	24.4	91	31	191	14.5	84	31	13	23.3	89	29	335	30.1	51	31	239	20.9	81
1,000--	31	139			16	114	27.0		25	138	24.4	90	31	134			31	148	25.1	77	29	87			31	134		
950----	31	585	19.1	66	16	579	24.1	76	25	592	23.4	79	31	575	16.1	63	31	601	22.9	71	29	551	28.2	53	31	588	21.3	
900----	31	1,045	16.0	68	16	1,046	21.0	72	25	1,059	21.6	66	31	1,030	13.8	65	31	1,069	20.1	66	29	1,025	24.1	50	31	1,049	18.4	
850----	31	1,528	12.7	68	16	1,535	18.1	67	25	1,554	19.0	61	31	1,510	10.8	68	31	1,561	17.0	66	29	1,522	20.3	61	31	1,538	15.5	
800----	31	2,033	9.7	60	16	2,050	15.1	65	25	2,073	15.7	60	31	2,013	7.9	66	31	2,076	13.8	65	29	2,043	16.2	67	31	2,050	12.9	
750----	31	2,572	6.8	54	16	2,600	12.2	62	25	2,618	12.3	58	31	2,550	5.0	61	31	2,621	10.5	65	29	2,593	12.0	72	31	2,596	9.9	
700----	31	3,133	3.8	50	16	3,171	9.1	58	25	3,194	8.9	52	31	3,103	2.0	54	31	3,190	7.6	58	29	3,161	8.2	71	31	3,160	7.0	
650----	31	3,733	0.5	49	16	3,787	5.5	58	25	3,805	5.5	48	31	3,705	- 0.8	46	31	3,803	4.1	55	29	3,782	4.9	66	31	3,772	3.7	
600----	31	4,370	- 2.7	44	16	4,433	1.6	54	24	4,455	2.0	38	31	4,334	- 4.2	44	31	4,444	0.5	51	29	4,425	1.3	57	31	4,412	- 0.1	
550----	29	5,053	- 6.6	38	16	5,133	- 2.2		23	5,154	- 1.8		31	5,017	- 8.4	43	31	5,145	- 3.4	47	25	5,120	- 2.7	49	31	5,107	- 4.2	
500----	27	5,789	-11.5	38	16	5,880	- 8.3		22	5,902	- 5.6		31	5,748	-13.0	40	31	5,886	- 7.8	41	25	5,872	- 6.9	43	31	5,849	- 8.5	
450----	27	6,590	-16.7		16	6,696	-11.9		22	6,724	-11.6		31	6,550	-18.2	41	31	6,703	-13.0	38	25	6,692	-12.0	43	31	6,685	-13.8	
400----	27	7,481	-22.9	39	16	7,587	-18.1		22	7,611	-17.8		31	7,414	-24.3	36	31	7,586	-18.8	34	25	7,580	-18.0	41	31	7,543	-20.1	
350----	27	8,427	-30.2		16	8,571	-24.9		22	8,597	-24.9		30	8,368	-31.3	35	30	8,569	-25.6		24	8,564	-25.2		31	8,518	-27.2	
300----	27	9,501	-38.7		16	9,673	-33.0		22	9,699	-33.2		30	9,442	-39.5		30	9,667	-34.2		21	9,663	-33.8		31	9,611	-35.2	
250----	26	10,728	-47.5		16	10,930	-42.8		21	10,957	-42.7		30	10,666	-47.7		30	10,915	-44.3		21	10,920	-43.5		31	10,856	-44.6	
200----	25	12,176	-54.5		14	12,397	-54.0		21	12,425	-54.2		29	12,113	-52.7		30	12,376	-54.8		19	12,387	-55.2		27	12,321	-54.5	
175----	24	13,025	-56.2		14	13,242	-59.7		21	13,270	-60.0		28	12,975	-54.4		29	13,220	-59.8		18	13,224	-60.9		27	13,168	-58.0	
150----	23	13,996	-57.5		14	14,193	-65.6		16	14,216	-66.3		26	13,937	-54.7		28	14,172	-64.3		14	14,170	-66.2		25	14,126	-61.0	
125----	20	15,129	-57.8		14	15,286	-70.7						21	14,870	-54.8		27	15,282	-66.5		11	15,250	-70.7		18	15,242	-62.2	
100----	19	16,538	-57.9		11	16,599	-70.3						18	16,540	-55.0		20	16,625	-65.6		11	16,571	-70.6		12	16,621	-61.4	
80------	8	17,962	-55.9		7	17,937	-66.1						5	18,008	-52.3		16	17,988	-62.8		7	17,911	-65.6		7	18,023	-57.9	
60------						19,706	-61.3																					

Standard pressure surface (mb)	LODGE GRASS, MONT. (926 MB.)				EL PASO, TEX. (881 MB.)				FT. SILL, OKLA. (811 MB.)				GLASGOW, MONT. (980 MB.)				GRAND JUNCTION, COLO. (852 MB.)				GREAT FALLS, MONT. (868 MB.)				GREENSBORO, N. C. (956 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	792	21.0	81	31	1,195	27.8	34	31	1,908	20.7	30	31	642	19.0	55	31	1,471	24.7	33	31	1,128	18.5	51	31	273	21.2	
1,000--	31	118			31	54			31	81			31	102			31	44			31	35			31	151		
950----	31	571			31	526			31	509			31	566			31	513			31	491			31	604	22.3	
900----	31	1,040	21.6	70	31	1,009			31	993			31	1,018	19.8	46	31	996			31	1,021			31	1,071	19.3	
850----	31	1,536	19.8	61	31	1,517	26.8	30	31	1,492			31	1,507	15.5	49	31	1,498	25.1	23	31	1,507	17.5	44	31	1,561	15.8	
800----	31	2,056	16.9	57	31	2,047	22.3	35	31	2,023	23.4	18	31	2,018	11.8	51	31	2,031	24.4	21	31	2,022	13.9	48	31	2,073	12.3	
750----	31	2,595	13.5	56	31	2,607	17.5	41	31	2,583	19.5	19	31	2,561	8.0	52	31	2,595	19.5	25	31	2,569	10.0	52	31	2,615	9.3	
700----	31	3,181	9.5	53	31	3,188	12.4	45	31	3,169	14.1	24	31	3,156	3.9	51	31	3,178	14.1	30	31	3,131	5.6	57	31	3,182	6.1	
650----	31	3,793	5.2	50	31	3,808	7.2	52	31	3,789	8.3	31	31	3,722	0.0	49	31	3,802	8.4	37	31	3,736	0.9	58	31	3,791	2.9	
600----	31	4,440	0.6	46	31	4,457	2.1	56	31	4,432	2.2	30	31	4,356	- 3.8	43	31	4,451	2.6	42	31	4,471	- 3.3	53	31	4,431	- 0.3	
550----	31	5,134	- 4.4	47	30	5,159	- 3.2	53	31	5,136	- 4.1	48	31	5,040	- 8.3	41	31	5,145	- 3.6	49	31	5,058	- 7.7	50	30	5,125	- 4.3	
500----	31	5,877	- 9.3	46	29	5,900	- 8.4	50	31	5,880	-10.4	30	31	5,771	-13.1	37	30	5,903	- 9.4	18	31	5,788	-12.7	45	30	5,867	- 9.0	
450----	31	6,685	-15.1	41	28	6,719	-13.0	35	31	6,688	-16.1	16	30	6,598	-18.9	31	30	6,703	-15.2	43	30	6,690	-18.4	44	30	6,682	-14.0	
400----	31	7,568	-20.7	33	27	7,600	-18.9		31	7,560	-22.6	37	30	7,432	-25.2	32	30	7,578	-21.4	36	30	7,442	-24.9	39	30	7,561	-20.0	
350----	31	8,541	-27.7	29	23	8,566	-26.1		31	8,525	-30.0		30	8,390	-32.3	32	30	8,548	-28.8	35	30	8,408	-32.1	37	30	8,537	-27.2	
300----	30	9,630	-35.8		23	9,677	-34.1		30	9,604	-38.3		29	9,457	-40.8		30	9,632	-37.0		30	9,478	-40.6		30	9,628	-35.5	
250----	30	10,871	-45.4		19	10,925	-43.9		30	10,832	-47.3		28	10,672	-50.3		30	10,868	-45.9		29	10,695	-50.3		30	10,870	-45.5	
200----	30	12,326	-55.1		17	12,380	-55.3		29	12,280	-54.3		26	12,304	-55.9		28	12,322	-54.5		26	12,329	-55.2		30	12,323	-55.8	
175----	28	13,169	-59.4		16	13,226	-60.7		28	13,131	-55.9		25	12,958	-55.7		27	13,173	-59.6		25	12,980	-55.6		30	13,164	-60.5	
150----	26	14,109	-61.5		15	14,179	-66.0		27	14,108	-58.8		22	13,933	-56.0		26	14,140	-59.9		23	13,959	-56.3		27	14,110	-61.0	
125----	16	15,232	-63.0		12	15,257	-69.2		26	15,245	-61.8		20	15,086	-57.6		22	15,269	-62.2		23	15,113	-57.9		20	15,225	-66.0	
100----	4	16,598	-63.3		9	16,582	-68.0		23	16,620	-62.6		19	16,492	-57.2		19	16,637	-62.3		19	16,518	-58.0		13	16,585	-63.5	
80------					6	17,941	-63.2		19	18,001	-60.3		16	17,915	-55.4		12	18,037	-59.7		15	17,927	-56.9		12	17,961	-61.1	
60------									11	19,815	-57.0														8	19,756	-57.8	
40------																									6	20,914	-55.4	

These average values for standard pressure surfaces were obtained by radiosondes: dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

* Radio began at Burrwood 8-15-50. Discontinued at New Orleans 7-31-50.

RADIOSONDE DATA

Average monthly values

	HATTERAS, N. C. (1017 MB.)				HAVANA, CUBA (1009 MB.)				HILO, T. H. (1011 MB.)				INTERNAT. FALLS, MINN. (975 MB.)				JOLIET, ILL. (995 MB.)				LAKE CHARLES, LA. (1014 MB.)				LANGLEY, VA. (831 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
JNCE	31	3	24.2	82	29	49	25.9	85	31	9	26.2	72	31	361	13.1	87	31	179	18.3	82	31	7	25.5	87	31	1,696	19.2	36
,)---	31	149	23.9	78	29	128	25.9	83	31	128	24.8	71	31	130			31	139			31	132	26.4	76	31	67		
5---	31	599	21.3	74	29	587	23.7	79	31	582	21.0	78	31	566	15.9	70	31	568	19.1	67	31	588	24.4	71	31	530		
0---	31	1,065	18.4	71	29	1,053	21.5	69	31	1,044	17.6	82	31	1,024	13.0	68	31	1,045	18.6	67	31	1,058	21.5	68	31	1,008		
5---	31	1,553	15.2	70	29	1,547	18.6	66	31	1,531	14.7	80	31	1,502	9.8	68	31	1,530	13.6	65	31	1,502	18.4	65	31	1,502		
0---	31	2,065	12.3	63	29	2,065	15.6	64	31	2,043	12.5	71	31	2,004	7.2	57	31	2,039	10.7	61	31	2,070	15.5	59	31	2,027	20.0	30
5---	31	2,607	9.6	58	29	2,614	12.7	59	31	2,592	11.5	46	31	2,540	4.4	53	31	2,579	7.9	57	31	2,620	12.2	53	31	2,583	15.5	34
0---	30	3,175	6.5	56	29	3,187	9.1	58	31	3,158	9.2	34	31	3,098	1.1	51	31	3,141	4.8	50	31	3,189	8.6	52	31	3,159	10.6	39
5---	30	3,785	3.1	52	29	3,768	5.7	50	31	3,777	6.5		30	3,690	- 1.8	47	31	3,749	1.6	47	31	3,806	5.0	48	31	3,776	5.5	47
0---	29	4,426	- 0.5	42	28	4,451	2.0	50	31	4,421	2.8		30	4,336	- 5.5	42	31	4,384	- 1.0	42	31	4,417	0.0	46	31	4,412	0.4	32
5---	27	5,117	- 4.3	39	27	5,157	- 1.9	46	31	5,121	- 1.4		30	4,996	- 9.6	40	31	5,073	- 5.7	38	31	5,146	- 3.0	40	31	5,114	- 5.2	53
0---	27	5,860	- 8.6	35	27	5,902	- 6.1	45	31	5,873	- 6.2		30	5,725	-14.2	40	31	5,811	-10.3	34	31	5,890	- 7.4	36	31	5,851	-10.8	48
5---	27	6,675	-13.8	34	27	6,724	-11.5	43	31	6,692	-11.5		30	6,551	-19.7	37	30	6,621	-15.7	33	31	6,708	-12.7	34	31	6,662	-16.5	39
0---	27	7,555	-19.7		27	7,611	-17.6	44	31	7,583	-17.9		30	7,379	-26.1	37	30	7,493	-22.0	31	31	7,595	-18.9		31	7,527	-23.2	38
5---	26	8,533	-26.8		26	8,597	-21.6	42	31	8,566	-25.5		30	8,331	-33.2		30	8,461	-29.1		31	8,573	-25.6		31	8,491	-30.5	36
0---	26	9,625	-35.1		26	9,699	-33.2	40	31	9,663	-34.6		30	9,390	-41.3		30	9,444	-37.2		31	9,672	-34.0		31	9,566	-39.1	
5---	25	10,880	-44.1		26	10,955	-42.8		31	10,909	-44.9		28	10,604	-50.6		30	10,781	-46.1		31	10,922	-44.0		31	10,790	-48.9	
0---	24	12,341	-54.1		26	12,424	-54.3		30	12,360	-57.3		26	12,034	-52.9		29	12,237	-51.9		31	12,383	-55.3		31	12,231	-55.2	
5---	23	13,181	-58.6		26	13,267	-60.1		28	13,189	-64.1		21	12,880	-53.0		28	13,085	-57.4		30	13,222	-61.1		30	13,078	-56.4	
0---	20	14,146	-62.5		22	14,216	-66.8		27	14,119	-69.3		17	13,913	-54.0		25	14,050	-59.1		30	14,165	-66.7		29	14,054	-58.0	
5---	15	15,281	-64.1		21	15,301	-73.0		26	15,196	-71.7		13	15,063	-55.1		22	15,179	-59.8		29	15,255	-70.2		27	15,191	-60.1	
0---	9	16,629	-63.1		14	16,599	-73.7		21	16,589	-71.6		5	15,928	-54.7		13	16,589	-59.2		25	16,581	-69.3		21	16,579	-60.3	
0---	5	17,967	-62.4		11	17,909	-68.7		12	17,832	-69.1						10	17,996	-56.7		21	17,919	-66.1		17	17,980	-58.2	
0---									12	18,577	-62.4						6	19,828	-54.1		13	19,686	-61.0					
0---									11	20,712	-58.6										7	20,809	-58.4					
0---									10	22,119	-55.4																	

	LAS VEGAS, NEV. (934 MB.)				LITTLE ROCK, ARK. (1006 MB.)				MAZATLAN, MEXICO (1008 MB.)				MEXICO, D.F. (967 MB.)				MERIDA, MEXICO (1011 MB.)				MIAMI, FLA. (1016 MB.)				NANTUCKET, MASS. (1015 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
JNCE	31	660	32.3	16	30	79	23.8	82	31	14	29.5	73	31	804	26.9	31	31	27	26.9	80	31	4	26.6	82	31	14	17.9	94
,)---	31	36			30	135	24.9	77	31	85	28.9	75	31	103			31	120	26.4	80	31	144	26.3	79	31	140	18.5	84
5---	31	508			30	591	23.3	73	31	549	25.4	75	31	566	26.9	29	31	577	24.5	71	31	596	23.4	78	31	581	18.2	68
0---	31	993	32.7	16	30	1,056	20.2	74	31	1,016	23.2	72	31	1,033	23.4	34	31	1,045	21.4	72	31	1,067	20.6	75	31	1,043	15.9	64
5---	31	1,503	28.4	17	30	1,548	17.4	70	31	1,513	20.3	73	31	1,528	19.5	39	31	1,539	18.5	75	31	1,560	17.7	74	31	1,527	13.3	60
0---	31	2,035	23.6	20	30	2,064	14.6	69	31	2,035	17.5	68	31	2,046	15.4	46	31	2,058	15.3	70	31	2,077	14.7	71	31	2,035	10.5	57
5---	31	2,597	18.5	23	30	2,614	11.5	68	31	2,588	14.7	61	31	2,595	11.6	47	31	2,606	12.2	65	31	2,624	11.7	66	31	2,575	7.3	55
0---	31	3,179	13.1	29	30	3,181	7.7	63	31	3,165	10.8	62	31	3,163	7.8	42	31	3,179	8.9	65	31	3,196	8.6	61	31	3,135	4.3	48
5---	31	3,803	7.4	34	30	3,795	4.3	58	31	3,784	6.6	64	31	3,773	3.7	38	31	3,795	5.8	58	30	3,807	5.0	56	31	3,738	1.1	44
0---	31	4,448	1.7	38	30	4,437	0.5	52	31	4,432	2.2	65	31	4,415	- 0.6	34	29	4,440	2.3	53	30	4,454	1.3	57	31	4,375	- 2.1	37
5---	31	5,141	- 4.1	40	30	5,134	- 3.5	46	29	5,130	- 2.3	64	31	5,107	- 5.2	30	29	5,141	- 2.0	52	30	5,151	- 2.6	52	31	5,063	- 6.6	35
0---	31	5,886	- 9.6	34	30	5,878	- 7.6	40	27	5,880	- 7.1	60	31	5,845	-10.2	27	29	5,890	- 6.5	48	30	5,900	- 7.1	48	29	5,801	-11.5	34
5---	31	6,696	-15.5		30	6,696	-12.6	40	26	6,702	-11.9	56	31	6,654	-15.9		29	6,712	-11.8	46	29	6,717	-12.1	43	29	6,604	-16.9	
0---	30	7,569	-22.3		30	7,580	-18.7		26	7,587	-17.4	47	31	7,526	-22.6		28	7,599	-17.8	44	28	7,608	-17.8	41	29	7,475	-23.1	
5---	30	8,535	-29.5		30	8,562	-25.9		24	8,570	-24.5	42	31	8,491	-30.4		28	8,584	-24.9	41	28	8,593	-24.8	38	29	8,439	-30.2	
0---	29	9,617	-37.6		30	9,658	-34.4		23	9,673	-32.4		30	9,567	-39.0		28	9,686	-33.2	42	27	9,695	-32.9	38	29	9,516	-38.4	
5---	29	10,852	-46.4		30	10,907	-44.2		21	10,929	-42.5		30	10,792	-48.2		28	10,939	-43.5		26	10,953	-42.7		29	10,746	-46.4	
0---	29	12,305	-54.3		30	12,367	-54.9		20	12,398	-54.7		27	12,232	-55.2		28	12,399	-55.7		26	12,420	-54.3		29	12,203	-53.3	
5---	29	13,154	-57.3		30	13,210	-59.7		20	13,238	-61.7		24	13,075	-55.8		28	13,236	-62.1		26	13,263	-59.6		29	13,055	-56.3	
0---	28	14,123	-60.6		29	14,163	-64.5		17	14,185	-67.6		21	14,056	-57.6		25	14,176	-68.5		25	14,215	-65.6		24	14,030	-59.0	
5---	27	15,246	-64.1		25	15,275	-66.9		8	15,269	-74.1		18	15,206	-59.3		14	15,239	-73.7		21	15,313	-71.4		21	15,167	-60.4	
0---	25	16,604	-64.9		20	16,628	-65.6						12	16,583	-57.7		5	16,531	-73.8		19	16,628	-71.1		14	16,552	-58.9	
5---	18	17,979	-62.4		17	17,996	-61.7						8	17,994	-56.3						12	17,965	-66.3		10	17,964	-56.6	
0---	12	19,765	-57.4		5	19,792	-58.7						5	19,822	-54.2						5	19,753	-61.6		6	19,806	-53.7	
0---	7	20,906	-55.3																									

	NASHVILLE, TENN. (996 MB.)				NORTH PLATTE, NEB. (919 MB.)				OAKLAND, CALIF. (1013 MB.)				OKLAHOMA CITY, OKLA. (950 MB.)				OMAHA, NEBR. (980 MB.)				PHOENIX, ARIZ. (970 MB.)				PITTSBURGH, PA. (973 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
JNCE	31	177	22.2	85	28	849	20.3	74	31	6	17.2	71	31	391	23.5	80	31	308	21.0	79	31	338	32.5	29	31	382	20.3	71
,)---	31	141			28	104			31	118	16.3	73	31	119			31	134			31	57			31	143		
5---	31	591	21.9	70	28	557			31	569	21.1	47	31	578	24.3	70	31	584	20.9	68	31	525	34.6	24	31	597	20.5	64
0---	31	1,058	18.7	73	28	1,026	21.7	60	31	1,028	22.6	26	31	1,045	21.8	66	31	1,047	18.0	69	31	1,012	31.2	24	31	1,055	17.5	65
5---	31	1,547	15.2	74	28	1,521	19.2	57	31	1,522	20.9	19	31	1,539	19.2	61	31	1,534	15.0	67	31	1,520	26.9	28	31	1,544	13.9	56
0---	31	2,059	12.6	63	28	2,040	15.8	55	31	2,043	17.6	20	31	2,059	16.5	54	31	2,046	12.4	59	31	2,050	22.1	32	31	2,050	10.6	62
5---	31	2,604	10.0	59	28	2,580	12.3	54	31	2,597	13.8	22	31	2,612	13.0	52	31	2,593	10.0	48	31	2,609	17.2	38	31	2,544	7.5	57
0---	31	3,170	7.1	56	28	3,159	8.1	53	31	3,166	9.4	24	31	3,182	9.2	51	31	3,157	7.0	43	31	3,189	12.0	42	31	3,151	4.7	49
5---	31	3,782	3.8	52	28	3,771	3.7	51	31	3,781	5.4	23	30	3,795	5.1	52	31	3,769	3.3	40	31	3,808	6.7	44	31	3,758	1.8	38
0---	31	4,424	0.2	49	28	4,412	- 0.6	45	31	4,425	0.7	22	30	4,441	0.7	49	31	4,407	- 0.8	38	31	4,454	1.5	43	31	4,393	- 1.6	33
5---	31	5,120	- 3.8	46	28	5,104	- 5.1	46	31	5,120	- 4.3	23	30	5,139	- 3.7	45	31	5,099	- 5.3	37	31	5,148	- 3.9	44	31	5,086	- 5.1	
0---	31	5,862	- 8.3	41	28	5,842	-10.6	48	31	5,860	- 9.8		30	5,881	- 7.9	38	31	5,839	- 9.8	35	31	5,892	- 9.3	42	30	5,822	-10.0	
5---	30	6,680	-13.2	39	28	6,654	-15.9	41	31	6,670	-15.8		30	6,699	-13.0		31	6,652	-15.2		31	6,702	-14.5	34	30	6,632	-15.4	
0---	30	7,562	-19.4	35	28	7,522	-21.9	37	31	7,542	-22.6		30	7,583	-19.2		31	7,525	-21.3		31	7,582	-20.4		30	7,505	-21.9	
5---	30	8,540	-26.7		26	8,495	-28.6	39	31	8,507	-30.5		29	8,560	-26.7		31	8,496	-28.6		31	8,556	-27.5		30	8,473	-29.1	
0---	30	9,634	-35.1		26	9,579	-36.7	35	31	9,581	-39.0		29	9,653	-35.2		30	9,577	-37.0		30	9,646	-35.2		30	9,556	-37.5	
5---	30	10,878	-45.1		25	10,819	-45.9		31	10,810	-48.1		29	10,898	-44.9		30	10,815	-46.2		30	10,891	-44.5		30	10,787	-47.2	
0---	29	12,335	-55.2		23	12,271	-55.6		29	12,257	-54.8		28	12,354	-55.5		30	12,268	-55.3		30	12,361	-54.7		29	12,232	-55.3	
5---	29	13,177	-60.1		21	13,114	-59.6		29	13,105	-57.4		29	13,195	-60.3		30	13,114	-58.1		30	13,197	-59.7		29	13,078	-53.7	
0---	27	14,127	-64.5		20	14,074	-60.6		27	14,072	-59.3		29	14,145	-64.6		28	14,081	-60.0		28	14,141	-64.3		27	13,994	-59.9	
5---	25	15,233	-65.9		15	15,202	-61.2		23	15,202	-61.7		28	15,247	-66.9		25	15,212	-61.5		18	15,267	-67.5		23	15,160	-61.3	
0---	22	16,588	-63.3		10	16,582	-61.5		20	16,573	-62.6		22	16,598	-65.7		24	16,595	-61.5		9	16,620	-68.4		18	16,572	-59.9	
0---	16	17,973	-61.1						14	17,951	-60.2		18	17,963	-62.2		20	17,983	-58.6						13	17,981	-57.2	
0---	5	19,759	-57.2										8	19,773	-58.9													

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb)	PORTLAND, MAINE (1014 MB.)				RAPID CITY, S. DAK. (904 MB.)				ST. CLOUD, MINN. (979 MB.)				SAN ANTONIO, TEX. (986 MB.)				SAN JUAN, P. R. (1013 MB.)				SANTA MARIA, CALIF. (1006 MB.)				S.STE. MARIE, MICH (990 MB.)		
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature
SURFACE	31	20	16.4	91	31	980	18.4	60	31	317	17.7	66	30	240	28.1	61	31	19	26.2	87	31	71	14.2	89	31	221	11.8
1,000--	31	141	18.2	78	31	98			31	129			30	116			31	133	25.7	85	31	121	13.9	88	31	138	
950----	31	583	17.8	67	31	551			31	578	18.5	58	30	576	27.6	58	31	589	22.9	83	31	571	18.4	65	31	573	14.6
900----	31	1,043	15.3	66	31	1,018	19.2	56	31	1,034	15.7	63	30	1,052	24.2	62	31	1,056	20.0	82	31	1,025	23.2	27	31	1,028	12.3
850----	31	1,525	12.2	67	31	1,511	18.8	48	31	1,517	12.7	65	30	1,550	20.5	65	31	1,548	17.3	77	31	1,522	21.8	27	31	1,505	9.8
800----	31	2,031	9.5	61	31	2,029	15.2	50	31	2,023	9.5	65	30	2,071	17.1	61	31	2,065	14.9	69	31	2,043	18.3	27	31	2,007	7.4
750----	31	2,570	6.3	58	31	2,579	11.4	52	31	2,564	6.7	60	30	2,617	13.9	55	31	2,616	12.3	59	31	2,600	14.4	29	31	2,539	5.0
700----	31	3,127	3.2	51	31	3,145	7.3	53	31	3,121	3.6	54	30	3,198	10.2	50	31	3,186	9.1	52	31	3,170	10.4	28	31	3,096	1.9
650----	31	3,726	- 0.1	47	31	3,756	3.2	49	31	3,725	0.3	46	30	3,810	6.5	44	31	3,803	5.5	50	31	3,785	6.1	28	31	3,695	- 1.3
600----	31	4,361	- 3.6	45	30	4,394	- 1.2	44	31	4,357	- 3.5	44	29	4,462	2.7	36	31	4,447	2.3	41	31	4,431	1.3	25	30	4,326	- 4.9
550----	31	5,045	- 7.6	45	30	5,084	- 6.0	40	31	5,043	- 7.6	39	29	5,163	- 1.2		30	5,153	- 1.1	35	31	5,128	- 3.6		30	5,007	- 8.9
500----	31	5,779	-12.3	42	30	5,822	-11.1	34	31	5,775	-12.2	35	29	5,915	- 5.8		30	5,901	- 5.3	31	31	5,870	- 9.1		30	5,738	-13.6
450----	31	6,581	-17.4	37	30	6,629	-16.5	31	31	6,579	-17.5	36	29	6,737	-11.0		30	6,729	-10.5		31	6,682	-15.1		30	6,535	-19.1
400----	31	7,450	-23.5	38	29	7,497	-22.9		31	7,445	-23.8	39	29	7,629	-17.3		29	7,617	-16.8		31	7,557	-22.0		30	7,398	-25.2
350----	30	8,410	-30.9		29	8,463	-29.9		30	8,403	-31.2	38	27	8,614	-24.8		29	8,604	-24.2		31	8,524	-29.5		30	8,353	-32.4
300----	30	9,481	39.1		28	9,539	-38.4		30	9,477	-39.4		26	9,718	-33.2		29	9,709	-32.9		31	9,605	-38.0		29	9,418	-40.5
250----	30	10,709	-48.0		26	10,769	-47.0		30	10,701	-48.0		24	10,975	-42.6		28	10,967	-43.0		31	10,837	-46.5		29	10,637	-48.8
225----	27	12,141	-55.8		28	12,219	-54.6		28	12,146	-53.9		24	12,446	-53.9		28	12,433	-55.3		30	12,293	-53.3		29	12,084	-53.6
200----	31	13,991	-57.1		28	13,069	-56.3		28	13,002	-54.7		24	13,290	-60.0		28	13,272	-61.9		30	13,146	-56.0		27	12,950	-53.8
150----	19	13,260	-56.2		24	14,048	-56.8		25	13,998	-55.5		23	14,236	-65.9		26	14,214	-68.1		29	14,114	-59.5		26	13,936	-54.4
125----	13	15,093	-56.4		22	15,194	-58.6		24	15,149	-56.8		18	15,326	-69.6		24	15,293	-73.5		26	15,244	-62.9		25	15,093	-55.5
100----	12	16,505	-55.8		15	16,589	-58.6		21	16,570	-57.9		17	16,656	-69.1		18	16,584	-75.4		25	16,607	-64.7		24	16,513	-55.0
90-----	11	17,922	-54.9		7	17,990	-55.9		15	17,996	-55.8		12	18,006	-65.8		11	17,896	-70.6		16	17,980	-62.1		14	17,941	-54.2
80-----	8	19,748	-53.4										8	19,777	-60.5		7	19,645	-62.6		7	19,773	-58.3		5	19,795	-50.8
70-----	8	20,922	-52.2																								
60-----	5	22,362	-50.4																								

Standard pressure surface (mb)	SPOKANE, WASH. (931 MB.)				SWAN ISLAND, N. I. (1012 MB.)				TACUBAYA, MEXICO (774 MB.)				TAMPA, FLA. (1015 MB.)				TATOOSH ISLAND, WASH. (1014 MB.)				TOLEDO, OHIO (994 MB.)				WASHINGTON, D. C. (1015 MB.)		
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature
SURFACE	31	722	23.7	35	30	10	26.7	84	26	2,306	16.7	69	31	9	25.1	84	31	31	13.4	92	31	191	18.6	80	31	25	22.6
1,000--	31	90			30	113	26.7	81	26	62			31	144	25.6	77	31	145	13.5	88	31	140			31	154	22.2
950----	31	547			30	575	23.6	82	26	525			31	598	23.7	72	31	584	14.9	67	31	586	19.8	64	31	601	20.4
900----	31	1,018	23.0	30	29	1,038	20.8	77	26	1,002			31	1,067	21.1	67	31	1,036	13.9	58	31	1,048	16.6	65	31	1,064	17.5
850----	31	1,512	18.9	34	29	1,531	18.0	72	26	1,498			31	1,560	18.2	65	31	1,516	11.7	55	31	1,532	13.0	68	31	1,551	14.1
800----	31	2,028	14.5	40	29	2,049	15.0	66	26	2,027			31	2,078	15.2	63	31	2,021	9.1	55	31	2,040	10.4	55	31	2,060	10.8
750----	31	2,574	9.8	46	29	2,597	12.0	59	26	2,582	14.7	69	31	2,624	12.0	59	31	2,557	6.1	52	31	2,582	7.6	51	31	2,601	7.7
700----	31	3,138	5.6	47	29	3,169	8.8	55	26	3,159	10.5	74	31	3,197	8.7	59	31	3,115	2.9	47	31	3,140	4.6	43	31	3,161	4.8
650----	31	3,745	1.7	43	29	3,787	5.2	53	26	3,776	6.1	80	31	3,808	5.2	59	31	3,715	- 0.5	44	29	3,749	1.5	42	31	3,770	1.9
600----	30	4,380	- 2.2	35	29	4,429	1.7	46	26	4,425	1.9	84	31	4,457	1.3	64	31	4,347	- 4.1	44	29	4,382	- 1.9	40	31	4,405	- 1.5
550----	30	5,069	- 6.6	35	29	5,132	- 2.0	43	26	5,128	- 2.4	81	31	5,158	- 2.8	61	31	5,029	- 8.2	45	29	5,073	- 5.7		31	5,097	- 5.4
500----	30	5,803	-11.7	39	29	5,878	- 6.4	38	26	5,874	- 6.7	65	31	5,902	- 7.3	56	31	5,762	-12.9	43	28	5,811	-10.6		30	5,834	-10.3
450----	30	6,606	-17.3	37	29	6,704	-11.4		26	6,700	-11.2	52	31	6,726	-12.2	49	31	6,560	-18.4	40	27	6,619	-16.0		30	6,646	-15.7
400----	30	7,475	-23.8	36	29	7,588	-17.2	34	26	7,586	-17.0	40	31	7,607	-17.9	51	31	7,426	-24.7	44	27	7,489	-22.4		30	7,516	-21.5
350----	30	8,435	-31.5		29	8,575	-24.3	35	24	8,575	-24.1	42	31	8,592	-24.9	48	31	8,383	-32.2	45	25	8,453	-29.9		30	8,487	-28.5
300----	29	9,506	-40.1		29	9,679	-32.9		22	9,680	-32.8	44	31	9,695	-33.1	48	31	9,451	-40.6		24	9,534	-37.9		30	9,572	-36.6
250----	28	10,728	-49.9		28	10,936	-42.8		18	10,940	-43.0		30	10,951	-42.7		31	10,667	-49.2		22	10,760	-47.5		30	10,811	-45.6
200----	27	12,160	-55.5		28	12,403	-55.1		17	12,405	-55.2		30	12,422	-53.5		31	12,105	-55.3		21	12,216	-55.4		30	12,265	-54.5
175----	27	13,009	-56.2		27	13,243	-61.7		14	13,247	-61.7		30	13,269	-59.1		28	12,961	-55.4		19	13,064	-58.2		30	13,113	-57.7
150----	23	13,985	-56.0		26	14,180	-68.7		11	14,183	-68.8		29	14,221	-63.8		22	13,962	-56.3		18	14,024	-60.2		30	14,079	-60.1
125----	21	15,151	-56.2		24	15,254	-74.3		8	15,254	-74.3		27	15,321	-68.7		20	15,119	-56.3		16	15,155	-61.8		30	15,208	-62.1
100----	17	16,559	-55.0		22	16,541	-76.5						22	16,648	-68.4		15	16,536	-56.5		12	16,539	-60.9		30	16,587	-61.6
80-----	10	17,978	-54.0		19	17,844	-71.2						17	17,998	-65.1		10	17,957	-54.7		9	17,925	-57.8		27	17,976	-59.0
60-----					12	19,576	-64.3						10	19,777	-59.8										19	19,794	-56.6
50-----					9	20,707	-60.5						6	20,914	-57.1										12	20,960	-54.9

Note. All observations scheduled at 0330, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 10 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
face---------	31	140	1.8	31	240	2.1	31	315	0.5	31	340	1.0	31	233	0.7	31	335	3.2	31	114	5.5	29	245	3.6	28	222	0.9	30	141	1.8	30	246	0.4	31	192	0.9
----------	--	---	----	--	---	----	31	248	.3	--	---	----	--	---	----	--	---	----	31	116	6.6	29	253	4.4	28	230	2.1	30	132	2.1	30	245	.6	--	---	----
30----------	31	153	2.6	--	---	----	29	270	.8	--	---	----	31	299	.3	31	312	2.6	30	119	3.9	29	252	5.0	27	254	3.0	29	83	.9	30	225	1.3	--	---	----
30----------	31	160	2.3	--	---	----	28	267	1.3	31	331	2.0	31	271	1.4	31	313	2.0	29	117	2.0	26	259	4.8	23	282	4.1	26	345	2.2	29	246	2.0	31	178	.9
30----------	29	168	2.1	31	252	2.4	28	264	1.9	31	308	2.8	30	274	3.5	31	294	2.3	26	80	1.3	24	263	5.1	22	283	4.8	25	326	2.8	27	277	2.2	31	200	.9
30----------	29	179	1.8	31	251	1.8	27	268	3.0	31	294	4.0	28	273	5.6	31	292	3.4	23	52	1.7	24	280	5.8	19	275	5.3	24	310	3.4	26	294	3.1	31	239	.9
30----------	27	222	.9	31	271	1.8	26	271	3.7	29	279	6.0	26	279	7.8	31	265	4.5	23	61	1.6	21	278	7.2	17	280	5.4	24	299	3.5	26	289	3.6	31	231	.8
30----------	24	313	2.9	31	286	2.7	21	279	5.4	29	274	8.9	24	283	10.5	29	261	6.2	19	80	1.2	20	279	7.8	15	290	5.9	22	292	3.8	19	294	4.5	31	275	.7
30----------	22	321	5.2	30	290	4.4	18	277	5.8	23	273	12.8	19	278	10.6	27	260	9.1	16	49	.6	17	281	8.3	13	281	8.0	19	286	4.5	17	291	7.2	30	285	.8
00----------	16	325	6.6	30	279	4.3	16	272	6.7	20	275	12.2	16	279	14.0	25	263	8.1	15	274	1.0	15	291	9.3	11	286	10.1	16	297	4.9	16	291	10.1	29	285	1.1
30----------	11	312	6.7	24	271	6.5							11	284	15.5	15	266	7.6										14	295	4.0	14	268	9.2	27	256	5.0
000----------				17	283	9.3																						10	271	4.5	11	300	10.7	20	252	6.2
000----------				12	279	14.4																												12	277	8.0

Altitude (meters) m.s.l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro N.C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
face---------	31	238	3.2	31	236	2.3	31	174	0.6	31	287	2.0	31	98	3.5	30	218	1.6	31	196	1.5	31	145	0.4	31	306	2.5	31	105	3.3	30	167	0.7	31	313	0.8
5----------	--	---	----	--	---	----	31	181	1.3	--	---	----	31	96	3.2	30	223	1.7	--	---	----	31	215	.4	31	308	2.5	31	107	3.9	30	143	1.3	31	260	.8
00----------	--	---	----	--	---	----	31	192	2.2	31	283	2.5	30	81	1.8	29	239	3.3	31	191	2.3	29	273	1.3	31	337	2.3	30	118	3.0	28	352	.3	31	263	1.5
100----------	--	---	----	31	233	2.4	30	229	3.1	31	279	3.1	29	46	1.0	28	248	3.4	31	202	2.9	28	276	2.7	31	274	1.4	30	118	2.2	26	329	1.7	28	241	2.6
200----------	31	233	2.9	31	256	2.5	27	264	3.1	29	269	4.1	28	323	1.5	24	266	4.1	31	206	3.3	26	290	3.8	31	243	2.5	28	126	1.2	22	327	2.1	26	253	3.3
200----------	31	225	2.6	31	275	3.2	21	273	4.1	28	273	6.0	27	302	1.7	22	279	4.4	31	216	3.4	22	290	3.6	31	220	3.8	26	112	1.1	14	333	2.3	26	260	3.7
300----------	31	230	2.8	31	266	3.2	18	273	4.8	27	277	7.7	26	262	2.0	18	284	4.7	31	214	4.0	18	299	4.6	29	215	4.6	25	139	1.5	11	316	2.6	22	253	4.3
400----------	30	234	3.5	29	275	4.8	15	275	4.8	22	283	10.7	20	260	3.7	15	298	5.7	30	211	5.0	13	289	5.5	28	225	6.3	23	145	2.7				18	252	5.9
500----------	23	243	5.3	29	276	5.8	11	302	4.2	19	278	12.3	17	251	3.8	15	291	7.2	30	214	4.4	10	281	7.1	27	236	6.2	20	162	2.2				12	257	8.1
600----------	17	236	7.7	28	280	6.3				16	271	12.4	14	248	4.8	11	295	8.4	29	230	3.8				26	241	5.8	15	180	1.4				11	278	8.2
800----------				21	278	7.3				15	274	13.1	12	243	5.8				28	235	3.6				25	250	6.6									
000----------				17	278	10.9				13	274	15.9							22	231	6.7				16	284	7.7									
200----------				12	279	16.0													17	252	11.0															
000----------																			15	243	13.5															

	New York, N.Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
face---------	31	157	1.1	31	280	4.7	31	159	1.4	29	176	0.4	31	272	1.1	31	55	2.6	31	242	1.1	29	77	0.3	31	143	1.6	30	279	4.0	31	293	2.1	30	266	2.5
----------	31	213	1.7	31	279	3.2	31	165	1.4	29	177	.6	31	269	1.5	--	---	----	31	256	.9	29	14	.1	31	142	2.4	30	297	2.3	31	299	3.0	30	268	1.1
00----------	29	269	3.0	29	247	1.8	31	178	1.5	28	186	1.4	31	250	1.7	31	53	2.6	31	280	1.3	27	226	1.1	31	137	2.4	24	276	1.5	30	288	3.5	30	239	1.6
00----------	26	278	3.7	29	217	1.6	28	242	2.2	26	213	1.6	31	246	1.9	31	50	1.5	31	283	3.1	27	238	1.6	30	134	2.8	24	240	1.4	30	286	3.1	30	240	2.5
00----------	21	283	4.0	28	203	1.7	25	270	3.2	25	281	2.1	31	246	2.4	30	287	1.3	28	272	5.0	23	276	2.4	30	136	1.9	24	208	2.2	25	271	4.0	28	234	3.2
00----------	19	286	4.2	28	193	2.0	25	281	4.3	23	311	4.1	30	239	2.3	30	280	4.1	24	272	6.5	21	269	3.9	30	142	2.0	24	196	2.7	22	278	6.7	26	253	3.5
00----------	17	283	3.8	28	211	2.9	23	277	5.2	23	320	5.6	30	234	2.3	30	281	6.9	22	274	8.8	20	278	4.9	29	145	1.7	24	187	3.3	20	280	6.2	25	252	3.8
00----------	10	284	2.5	28	197	4.4	21	285	6.9	20	319	9.6	29	242	1.7	28	282	10.5	16	291	10.0	18	283	6.4	21	90	.4	23	193	4.1	16	282	7.7	24	252	7.1
00----------				26	207	3.3	19	302	6.7	19	318	11.6	28	191	1.2	24	295	12.7	14	295	12.3	17	274	7.4	17	297	1.4	20	187	4.8	11	285	6.9	24	245	9.6
00----------				26	204	3.7	16	308	6.1	18	310	12.3	27	232	2.9	20	293	12.5	13	295	12.0	11	277	7.9	13	292	1.8	19	205	4.8				23	255	10.8
00----------				23	234	3.1	11	305	7.9	15	302	14.9	24	237	6.3													17	270	11.4				21	269	13.7
000----------				23	238	4.6				12	303	15.6	11	263	8.2													14	228	19.9				17	260	15.3
000----------				12	278	6.2																						10	226	26.2				14	259	15.8

	Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
face---------	31	230	2.9	31	184	1.7
----------	--	---	----	31	204	1.8
00----------	31	232	3.6	30	234	1.6
00----------	31	234	3.6	28	275	3.4
00----------	30	235	4.1	28	282	4.8
00----------	29	246	4.8	24	288	5.5
00----------	27	259	6.2	21	274	6.3
00----------	24	272	8.0	17	281	7.1
00----------	22	272	10.0	15	271	8.0
00----------	20	269	11.9	10	264	7.6
00----------	15	281	15.3			

These free air resultant winds are based on pilot balloon observations made ar 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

Altitude meters m.s.l.	Albuquerque, N. Mex. (1,620 m.)			Bismarck, N. Dak. (547 m.)			Brownsville, Tex. (7 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			International Falls, Minn. (358 m.)			Little Rock, Ark. (80 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	110	2.8	31	130	3.2	31	108	1.4	31	110	4.1	31	240	1.9	31	114	0.3	31	165	0.9	31	243	0.4	31	11	0.3	31	66	1.2	31	295	0.8	31	100	0.4
500	-			-			-			30	126	8.1	31	288	2.3	31	164	2.3	31	120	1.5	--	---	----	31	175	.8	29	104	1.6	31	238	1.7	31	138	2.4
1,000	--	--	----	31	148	3.7	28	100	1.1	30	128	7.2	31	260	3.4	31	16	.3	31	164	.8	-	- -	----	31	135	1.8	29	102	.9	31	273	3.0	31	175	1.1
1,500	-	---	----	31	164	4.0	28	94	.4	30	127	4.0	31	290	3.8	31	355	.5	31	268	.9	30	252	.4	29	219	2.2	28	79	.4	31	287	5.1	31	253	1.4
2,000	31	148	2.0	31	172	5.5	30	277	3.8	31	106	2.8	31	297	5.1	31	325	1.4	31	297	1.4	30	265	1.2	29	242	2.3	27	294	1.2	31	290	6.5	31	280	1.9
2,500	31	218	1.5	31	178	2.6	29	284	7.1	31	92	2.9	31	63	1.4	31	302	1.7	31	302	2.9	30	275	2.2	29	259	2.5	28	287	2.1	31	295	7.3	31	312	3.0
3,000	31	302	2.4	31	208	1.9	31	288	6.7	31	96	1.7	31	302	7.1	31	282	2.1	31	304	4.0	30	286	3.1	30	261	2.7	26	278	2.6	31	291	8.5	31	315	4.4
4,000	31	305	3.7	31	244	4.0	31	290	8.3	30	37	1.4	31	287	8.8	31	278	3.4	31	305	6.2	30	278	4.5	31	286	4.2	26	271	4.2	28	291	10.2	30	324	5.8
5,000	31	300	4.9	31	264	4.4	31	292	11.1	29	59	1.4	31	292	10.3	30	285	3.7	31	306	7.9	30	274	4.5	31	278	4.3	26	274	4.6	29	292	11.5	30	319	6.6
6,000	30	307	4.9	30	280	4.6	29	289	12.3	29	56	1.4	30	296	11.0	29	284	4.2	31	300	9.3	28	278	6.5	31	280	6.1	26	282	5.8	28	290	12.9	30	310	6.8
8,000	29	306	4.8	29	312	4.9	28	288	14.0	28	351	1.1	28	296	12.0	28	285	5.1	31	284	12.6	29	284	8.7	31	278	9.5	24	278	9.7	26	289	14.9	30	287	9.3
10,000	28	254	9.4	29	285	6.7	28	280	15.1	27	291	2.5	28	284	15.7	28	286	6.1	30	279	16.0	29	260	13.6	29	276	12.2	23	286	12.9	24	287	15.5	30	268	11.2
12,000	27	220	14.1	27	251	9.4	27	271	21.5	26	290	3.1	24	274	19.2	27	273	11.2	27	271	20.2	22	269	16.9	29	267	13.5	21	291	13.9	17	297	19.3	30	267	13.5
14,000	24	236	9.4	21	282	7.8	17	270	24.7	21	7	1.6	15	284	14.0	25	288	6.1	23	278	17.4	18	288	14.0	23	282	10.5	16	288	11.3	11	296	17.1	28	274	11.8
16,000	19	176	4.8	19	284	8.8				17	90	1.4				21	301	1.6	10	27	10.8	13	314	10.3	13	276	8.8							21	304	3.1
18,000																15	97	4.4							11	100	5.7							15	58	4.5

Altitude meters m.s.l.	Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			New Orleans, La. (7 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	220	4.6	31	91	1.1	30	210	1.4	31	117	3.1				31	287	3.7	30	107	2.3	31	68	0.7	31	70	4.4	31	80	2.7	31	105	0.9	31	280	3.4
500	31	220	5.1	31	139	4.1	30	242	4.1	31	112	1.4				31	278	4.1	29	127	4.1	--	---	----	31	120	7.6	29	88	6.7	29	142	1.1	31	327	2.7
1,000	31	225	5.7	31	180	4.3	30	254	4.1	29	284	1.6				31	275	4.3	26	166	4.4	31	71	.7	31	45	6.7	30	89	7.3	29	241	2.3	31	325	3.1
1,500	31	227	6.7	31	182	4.1	30	260	4.1	31	98	1.6				31	277	4.6	25	182	2.8	31	79	1.0	31	108	4.1	31	87	7.7	30	276	4.5	31	357	1.7
2,000	31	227	5.0	31	196	3.7	30	265	4.1	31	147	2.7				31	283	4.7	29	242	1.8	31	295	.8	31	292	5.2	31	87	7.6	29	286	5.9	31	49	1.0
2,500	31	231	5.4	31	194	3.8	30	265	4.1	31	182	3.4				31	287	4.9	29	261	1.7	29	290	2.8	31	138	1.4	31	89	7.5	30	298	6.5	31	128	.8
3,000	31	238	4.5	31	187	3.3	30	271	4.1	31	218	3.5				31	291	5.1	29	217	2.1	30	295	5.0	31	92	1.5	31	87	7.1	30	297	7.6	31	195	1.5
4,000	31	240	5.0	31	142	2.5	28	278	4.1	31	253	1.2				31	291	5.1	25	314	4.5	30	296	10.4	31	36	2.3	31	85	6.2	28	292	9.0	31	207	2.8
5,000	31	242	5.0	31	151	2.0	27	284	4.1	31	284	3.4				31	291	5.4	26	318	5.4	29	301	13.3	31	13	2.9	31	83	5.4	29	292	10.4	31	203	3.6
6,000	31	244	5.7	31	196	1.6	26	288	4.1	31	289	5.1				31	294	5.8	28	309	6.3	29	296	14.0	29	339	2.3	30	85	5.0	20	289	12.8	31	201	4.2
8,000	30	247	6.4	30	246	1.7	21	294	4.1	31	294	6.6				31	301	6.8	28	285	9.1	28	286	14.4	26	342	2.0	29	88	3.0	29	284	16.0	31	229	3.4
10,000	29	252	7.1	29	271	1.0	18	302	4.1	29	305	7.6				30	311	7.8	26	287	11.1	27	281	15.9	26	289	5.9	28	146	.7	26	285	21.0	31	231	5.2
12,000	28	249	8.5	28	284	1.1	13	311	4.1	29	312	10.1				29	321	8.1	25	289	14.8	25	288	15.2	26	280	6.9	28	24	2.1	22	284	26.3	26	234	6.9
14,000	23	241	9.3	24	274	1.5				24	308	11.9				25	322	8.3	22	302	16.8	19	282	13.8	22	278	4.3	27	146	2.6	17	287	18.8	24	239	9.2
16,000				21	71	4.1				17	308	4.8				24	297	7.7	14	294	11.4	12	265	9.9	20	307	8.6	15	282	11.8	21	234	4.2
18,000				14	11	3.1				11	88	2.8				17	98	5.8							11	89	14.1	10	310	4.8	11	90	1.4

Altitude meters m.s.l.	Santa Maria, Calif. (72 m.)			Sault Ste. Marie, Mich. (221 m.)			St. Louis, Mo. (166 m.)			Tatoosh Island, Wash. (134 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	280	3.4	31	105	0.9	31	280	3.4	31	205	5.1
500	31	327	2.7	29	142	1.1	31	327	2.7	31	263	7.1
1,000	31	325	3.1	29	241	2.3	31	325	3.1	31	248	7.1
1,500	31	357	1.7	29	276	4.5	31	357	1.7	31	239	7.1
2,000	31	49	1.0	29	286	5.9	31	49	1.0	31	239	7.1
2,500	31	128	.8	30	298	6.5	31	128	.8	31	239	7.1
3,000	31	195	1.5	30	297	7.6	31	195	1.5	31	239	7.1
4,000	31	207	2.8	28	292	9.0	31	207	2.8	31	239	7.1
5,000	31	203	3.6	29	292	10.4	31	203	3.6	31	239	7.1
6,000	31	201	4.2	20	289	12.8	31	201	4.2	31	239	7.1
8,000	31	229	3.4	29	284	16.0	31	229	3.4	31	239	7.1
10,000	31	231	5.2	26	285	21.0	31	231	5.2	31	239	7.1
12,000	26	234	6.9	22	284	26.3	26	234	6.9	31	239	7.1
14,000	24	239	9.2	17	287	18.8	24	239	9.2	31	239	7.1
16,000	21	234	4.2	15	282	11.8	21	234	4.2	31	239	7.1
18,000	11	90	1.4	10	310	4.8	11	90	1.4	31	239	7.1

Table 30.—Solar radiation intensities for various air masses

TABLE MOUNTAIN, CALIF.

Month	Sun's zenith distance	A.M.				P.M.				Vapor pressure 7:30 P.M. E.S.T.
		75.7°	75.7°	75.7°	60.0°	60.0°	75.7°	75.7°	75.7°	
	Air mass	3.76	3.01	2.28	1.52	1.52	2.28	3.01	3.76	
August										Mb.
5		1.06	1.10	1.25	1.47	----	----	----	----	----
6		1.12	1.21	1.35	1.52	----	----	----	----	----
7		----	----	----	1.58	----	----	----	----	----
Mean values		1.09	1.16	1.28	1.56	----	----	----	----	----
Departures		-.04	-.03	-.02	-.01	----	----	----	----	----

LINCOLN, NEBR.

Month	Air mass	4.77	3.81	2.86	1.91	1.91	2.86	3.81	4.77	Vapor pressure 7:30 P.M. E.S.T.	
August										Mb.	Mb.
1		----	----	----	----	1.38	1.62	1.82	1.96	17.6	16.5
2		----	----	----	----	1.53	1.72	1.77	1.85	17.6	16.5
3		----	----	----	----	1.43	1.64	1.82	1.96	17.6	16.5
4		----	----	----	----	1.31	1.54	1.73	1.83	17.6	16.5
5		----	----	----	1.42	1.44	1.68	1.88	1.97	17.6	16.5
6		----	----	0.92	1.33	1.51	----	----	----	17.6	16.5
7		----	----	.81	1.07	1.31	1.55	1.78	1.96	17.6	16.5
8		----	----	----	----	1.37	1.58	1.78	1.97	17.6	16.5
9		----	----	.80	1.07	1.33	1.54	1.81	1.97	17.6	16.5
10		----	0.59	.96	1.12	1.34	1.61	1.88	1.97	17.6	16.5
Mean values		----	.79	.88	1.14	1.37	1.60	1.81	1.94	----	----
Departures		----	+.01	-.02	+.02	+.03	+.03	-.01	-.04	----	----

MADISON, WIS.

Month	Air mass	4.81	3.84	2.88	1.92	1.92	2.88	3.84	4.81	Vapor pressure 7:30 P.M. E.S.T.	
August										Mb.	Mb.
1		0.71	0.81	0.91	1.10	1.30	----	----	----	17.7	16.5
2		.75	.83	.95	1.07	1.27	----	----	----	11.8	13.2
3		.50	.62	.70	.88	1.28	----	----	----	15.3	15.8
4		.69	.76	.92	1.10	1.31	----	----	----	12.7	12.3
5		.50	.60	.77	.98	----	----	----	----	13.7	14.2
6		----	.65	.80	.98	1.19	----	----	----	17.7	20.4
7		.44	.54	.70	.92	1.14	----	----	----	21.8	23.4
8		.59	.70	.80	----	----	----	----	----	----	----
9		.81	.92	1.04	1.19	1.37	----	----	----	9.4	11.8
10		.73	.84	.95	1.07	1.34	----	----	----	9.4	11.4
11		.40	.49	.50	.71	1.26	----	----	----	18.3	19.6
Mean values		.61	.71	.82	1.00	1.26	----	----	----	----	----
Departures		-.05	-.03	-.05	.00	-.04	----	----	----	----	----

TACUBAYA, D.F., MEXICO

Month	Air mass	3.83	3.06	2.31	1.53	1.77	1.53	2.31	3.06	3.83	Vapor pressure 7:30 P.M. E.S.T.	
August											Mb.	Mb.
1		----	----	0.81	1.03	----	----	----	----	----	11.7	11.4
2		0.40	0.52	.65	.86	----	----	----	----	----	10.0	10.7
3		.32	.41	.61	.83	----	1.09	----	----	----	10.5	11.1
4		----	----	.64	.95	----	----	----	----	----	10.3	10.3
5		.62	.83	1.00	1.13	----	----	----	----	----	10.0	9.7
6		.61	.84	1.06	1.22	----	1.11	1.28	1.38	1.46	9.6	8.1
7		.71	.97	1.15	1.13	----	1.16	----	----	----	10.4	8.7
8		.75	.92	1.01	1.12	----	1.07	1.28	1.38	1.42	10.0	11.9
9		.39	.47	.61	.91	----	----	----	----	----	10.9	10.3
10		----	----	----	.91	----	----	----	----	----	10.4	10.3
11		.60	.67	.95	1.17	----	----	----	----	----	9.9	10.5
12		.64	.81	1.05	----	----	----	----	----	----	11.4	12.3
13		----	----	----	----	----	1.10	----	----	----	12.9	11.9
14		----	----	----	----	----	1.28	.84	.74	----	12.9	12.4
15		.55	.82	.96	----	----	----	----	----	----	11.4	12.4
16		.55	.68	.78	----	----	----	----	----	----	12.5	12.7
17		----	----	----	1.21	----	1.13	1.00	.86	.75	11.3	10.1
18		----	----	----	.85	----	----	----	----	----	12.8	13.6
Mean values		.56	.72	.87	1.02	----	1.08	.94	.77	.64	----	----
Departures		----	----	----	----	----	----	----	----	----	----	----

Extrapolated

Solar radiation intensities are expressed in gram-calories per cubic centimeter of normal surface (langleys).

An explanation of Tables 30 and 33 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 1. A list of pyrheliometric stations is given on page [illegible] of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 73, No. 3, March 1945, p. 47.

SOLAR RADIATION DATA

Table 31.—Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during August, 1950

Date	30	31	1	2	3	4	5	Average	6	7	8	9	10	11	12	Average	13	14	15	16	17	18	19	Average
Langleys	267	269	36	148	69	217	244	178	128	302	302	269	155	211	319	241	257	229	314	315	299	236	194	263
Date	20	21	22	23	24	25	26	Average	27	28	29	30	31	1	2	Average								
Langleys	82	351	297	262	295	284	315	269	313	351	198	161	43	129	256	207								

Table 32.—Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during August, 1950

Date	30	31	1	2	3	4	5	Average	6	7	8	9	10	11	12	Average	13	14	15	16	17	18	19	Average
Langleys	124	125	34	---	---	131	140	111	89	121	111	124	103	127	103	111	110	121	113	108	115	111	101	111
Date	20	21	22	23	24	25	26	Average	27	28	29	30	31	1	2	Average								
Langleys	64	90	101	98	102	114	107	96	114	84	99	121	---	88	111	103								

Note.—Langley is the unit used to denote one gram calorie per square centimeter.

SOLAR RADIATION DATA

Table 33.--Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. AUGUST 1950

	Honolulu, T.H.	Pearl Harbor, T.H.	Brownsville, Tex.	Gainesville, Fla.	Apalachicola, Fla.	Lake Charles, La.	El Paso, Tex.	Fort Worth, Tex.	La Jolla, Calif.	Charleston, S.C.	Griffin, Ga.	Phoenix, Ariz.	Riverside, Calif.	Santa Maria, Calif.	Albuquerque, N.M.	Hatteras, N.C.	Oklahoma City, Okla.	Raleigh, N.C.	Oak Ridge, Tenn.	Las Vegas, Nev.	Nashville, Tenn.	Stillwater, Okla.	Fresno, Calif.	Davis Calif.	Washington, D.C.	Ely, Nev.	Seabrook, N.J.	Indianapolis, Ind.	Grand Lake, Colo.	Salt Lake City, Utah	New York, N.Y.	State College, Pa.	Lincoln, Nebr.
1950																																	
July 30------	658	591	708	396	452	696	629	(702)	588	665	495	327	477	595	466	720	426	610	634	712	562	449	742	515	637	779	557	635	613	---	620	528	460
July 31------	612	686	647	492	615	695	752	697	341	626	408	240	362	(535)	572	702	688	633	178	409	328	575	735	547	596	748	602	404	775	708	475	550	554
August 1----	616	607	716	248	678	683	744	532	569	517	574	725	513	715	638	662	140	492	482	576	486	149	461	418	440	488	429	464	713	695	232	318	688
August 2----	539	407	679	421	715	674	617	333	708	664	702	716	562	733	660	615	711	645	312	678	129	686	745	442	427	393	246	675	518	594	139	364	698
August 3----	706	696	673	650	686	632	669	701	289	624	715	718	577	494	637	640	656	559	544	655	694	624	769	558	514	701	---	675	522	537	75	582	572
August 4----	605	583	728	585	515	616	722	686	424	604	774	694	579	735	706	284	495	298	700	727	647	513	781	802	661	689	633	594	611	537	643	481	535
August 5----	668	700	727	506	689	633	720	521	731	538	606	488	576	771	577	620	696	459	599	742	620	535	814	407	433	757	589	713	389	646	610	443	562
Averages-----	629	610	697	471	621	661	693	596	522	606	612	558	521	654	608	606	545	528	493	643	495	505	721	527	530	651	509	594	592	620	399	467	582
Departures---	-5	+2	---	-48	+35	+55	+13	+28	-9	---	---	-46	-41	-7	---	---	00	---	+30	-5	+22	---	+49	-118	+51	---	-7	---	+21	+18	-45	-1	+54
August 6----	556	610	725	369	511	596	728	460	684	684	700	671	592	687	682	522	489	681	634	717	642	199	793	494	571	742	428	699	439	688	324	666	603
August 7----	701	614	721	625	685	590	728	619	617	688	575	706	566	662	733	679	638	704	648	704	639	585	790	552	574	755	625	629	594	701	524	674	229
August 8----	716	652	601	595	707	668	635	671	703	695	506	717	554	752	725	725	694	605	621	700	535	671	794	570	646	749	617	508	477	674	639	674	682
August 9----	620	612	671	521	715	505	735	609	683	683	647	702	491	657	702	706	700	613	259	690	209	691	791	561	579	743	660	280	498	613	543	506	637
August 10----	515	555	647	434	596	569	739	661	689	604	549	428	518	684	688	720	625	621	276	462	490	475	777	565	420	621	442	600	497	472	381	447	590
August 11----	547	436	739	662	708	659	691	598	687	536	534	502	570	677	537	623	606	491	500	692	493	497	780	517	563	700	555	450	374	442	357	228	471
August 12----	596	644	668	656	707	702	706	622	688	629	675	694	543	699	600	539	667	535	489	450	477	624	740	533	439	477	476	460	550	547	457	588	166
Averages-----	607	589	682	552	661	613	709	606	679	646	599	631	547	688	667	645	631	607	490	631	498	534	781	542	542	685	543	518	490	591	461	541	483
Departures	+18	+24	---	+28	+35	00	+10	+10	+148	---	---	+5	+3	+10	---	---	+33	---	+19	-14	+34	---	+133	-98	+80	---	+14	---	-41	-16	+37	+59	-15
August 13----	705	659	633	595	620	627	721	567	647	494	557	704	507	685	677	562	665	357	327	672	165	636	746	525	654	501	610	558	630	542	672	619	234
August 14----	387	472	666	475	536	454	657	639	671	581	385	689	512	723	602	722	600	660	372	686	199	657	749	551	647	639	649	634	615	624	511	630	612
August 15----	280	331	701	407	635	662	623	666	474	160	504	690	515	694	588	694	668	344	326	685	149	466	743	505	459	725	637	445	586	647	412	562	666
August 16----	546	383	691	595	640	533	691	547	527	592	472	687	617	677	697	620	390	211	428	679	502	348	730	551	360	587	381	638	403	642	512	383	586
August 17----	527	364	646	565	360	615	(706)	517	339	506	454	692	576	687	621	528	418	498	620	662	586	367	761	440	372	524	512	445	542	669	303	452	544
August 18----	383	389	557	586	501	613	674	502	287	507	383	671	532	653	669	662	654	491	428	657	301	656	743	499	467	490	456	132	669	647	231	293	656
August 19----	747	693	338	405	642	432	717	590	200	603	522	665	470	(649)	635	462	701	485	366	669	337	651	720	503	357	510	391	586	411	609	144	245	146
Averages-----	511	470	605	519	562	563	684	575	449	563	440	685	533	681	641	607	585	435	409	673	320	540	742	511	474	565	519	491	551	626	398	455	492
Departures---	-68	-70	---	-6	-34	-19	-7	-3	-42	---	---	+32	-6	+14	---	---	-3	---	-46	+26	-91	---	+109	-95	+32	---	+17	---	+51	+20	+17	+30	+5
August 20----	737	670	585	650	630	375	713	622	469	499	673	668	499	624	689	483	350	377	487	---	453	185	692	493	411	559	288	688	438	549	81	561	692
August 21----	720	670	626	424	464	646	670	519	616	353	548	607	532	573	685	548	469	434	578	550	470	562	695	502	611	608	672	689	483	639	648	683	609
August 22----	716	661	663	407	667	594	680	421	295	562	678	641	514	623	665	(668)	523	445	613	617	559	556	731	496	182	568	154	672	510	544	285	544	648
August 23----	636	604	692	486	673	609	671	493	448	502	606	640	538	661	671	644	565	442	569	624	578	568	749	507	195	617	452	676	437	562	331	430	649
August 24----	680	630	621	467	650	570	697	620	368	226	594	409	525	(685)	653	452	645	583	593	644	501	604	675	489	352	643	348	619	386	561	322	254	420
August 25----	592	534	421	565	406	565	691	618	195	218	464	648	469	(661)	541	670	650	538	304	616	242	587	638	520	369	643	485	565	320	552	296	407	437
August 26----	587	634	562	572	703	629	689	606	297	436	318	653	410	509	582	492	642	521	446	622	251	592	617	511	583	625	577	544	281	655	451	524	250
Averages-----	667	629	596	510	599	587	688	557	384	400	554	610	498	619	634	565	549	477	513	612	436	522	685	502	386	608	425	636	408	580	345	486	529
Departures---	+41	+41	---	+11	+55	+36	+6	+15	-110	---	---	-30	-28	-11	---	---	-6	---	+81	-16	-13	---	+79	-89	-41	---	-33	---	-61	-16	-31	+40	+54
August 27----	612	488	484	---	681	514	686	585	425	455	423	668	490	587	674	666	413	516	289	625	495	373	606	495	592	650	604	475	433	686	517	551	305
August 28----	677	606	656	402	619	360	676	578	504	568	409	655	515	588	671	633	573	551	485	619	409	489	603	492	516	605	509	309	328	586	367	433	470
August 29----	673	632	648	204	425	632	680	599	249	595	511	658	521	627	659	474	421	551	190	620	309	394	611	499	325	658	465	383	575	596	303	319	337
August 30----	654	686	547	464	91	490	676	634	429	322	369	653	548	579	647	621	640	542	285	617	238	612	635	485	454	574	411	296	608	589	253	142	593
August 31----	673	647	655	540	86	446	663	335	289	372	155	658	508	559	652	626	516	385	217	618	180	441	612	486	443	505	511	148	615	557	379	289	611
September 1--	691	645	662	555	348	389	583	(311)	218	435	466	659	501	631	553	632	661	530	187	615	360	607	601	499	294	581	431	520	468	620	252	233	595
September 2--	637	666	478	563	645	406	693	307	175	592	491	627	485	638	622	637	523	570	391	594	345	491	582	479	390	625	303	98	534	552	343	212	619
Averages-----	660	624	590	455	414	465	668	479	327	477	403	654	510	601	640	613	535	521	292	615	334	487	607	491	430	598	462	319	509	598	345	311	505
Departures---	+13	+8	---	-12	-62	-31	+15	-15	-141	---	---	+38	+4	-02	---	---	+25	---	-86	+11	-13	---	+29	-66	+3	---	+22	---	+45	+38	-14	-114	+58

Accumulated Departures January 1 to September 2, 1950

	-168	+336	---	+35	---	---	---	---	---	---	---	---	-3297	---	---	---	---	---	---	---	-903	---	+12852	-3269	-3171	---	---	---	---	---	-3892	-2205	+1848

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Table 33.--Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. - Continued. AUGUST 1950

	Newport, R.I.	Put-in-Bay, Ohio	East Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Medford, Oreg.	Amherst, Mass.	Lynn, Mass.	Ithaca, N.Y.	Twin Falls, Idaho	Albany, N.Y.	Lander, Wyo.	E. Lansing, Mich.	Madison, Wis.	Boise Idaho	Portland, Me.	Toronto, Ontario	Rapid City, S. Dak.	Ottawa, Ontario	St. Cloud, Minn.	North Head, Wash.	Sault Ste. Marie, Mich.	Bismarck, N. Dak.	Caribou, Me.	Great Falls, Mont.	Spokane, Wash.	Seattle, Wash. (Univ. of Wash.)	Glasgow, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska.	Aklavik, MacKenzie
1950																																
July 30------	601	588	568	639	590	755	517	583	516	706	529	727	402	338	---	540	385	566	621	442	706	358	676	285	82	595	434	407	300	468	286	131
July 31------	596	422	536	625	527	745	436	515	371	688	284	707	312	332	722	443	121	660	713	524	513	269	461	548	608	696	668	446	238	485	320	248
August 1----	131	575	101	89	53	708	180	91	532	689	288	759	396	628	711	178	216	748	713	302	549	180	682	720	774	706	661	728	624	459	478	507
August 2----	244	575	237	328	230	721	217	276	498	629	279	611	308	248	---	420	539	733	---	578	---	102	635	590	774	708	369	705	668	242	579	621
August 3----	120	451	184	180	189	730	301	219	444	350	239	435	439	690	213	447	364	594	---	561	677	190	709	690	302	744	438	588	667	204	246	472
August 4----	461	713	374	475	415	486	581	364	243	301	519	644	552	563	372	592	286	379	306	686	425	559	576	321	409	580	599	275	692	393	468	194
August 5----	605	672	471	541	340	732	514	443	401	390	393	742	592	691	324	327	602	698	90	583	333	711	626	175	586	428	289	548	645	331	382	358
Averages-----	394	571	353	411	335	697	389	356	429	536	362	661	429	499	472	421	359	625	489	525	534	338	624	476	505	637	494	528	548	369	394	362
Departures---	-94	+18	-109	-76	-79	---	---	-90	-77	-32	-104	+40	+1	+11	---	-90	-61	-14	-29	-18	---	---	---	---	-67	+11	---	---	-34	+37	+46	-17
August 6----	251	697	245	308	270	734	418	324	629	678	721	767	605	680	---	---	641	665	655	617	237	707	557	633	694	678	174	737	455	279	366	553
August 7----	586	679	410	672	567	731	508	646	614	672	652	742	578	654	---	---	638	718	646	438	468	693	689	703	677	652	426	599	667	389	475	211
August 8----	678	657	584	728	619	691	661	614	670	669	655	587	462	237	586	727	529	580	613	651	695	370	696	684	617	647	609	644	580	201	560	474
August 9----	594	328	542	604	535	703	494	560	483	558	562	628	380	583	---	612	265	---	---	635	566	531	342	621	625	507	609	470	375	145	544	361
August 10----	330	580	284	342	333	701	424	334	538	575	435	488	392	368	---	525	478	---	625	386	370	717	428	453	654	682	556	439	661	77	433	285
August 11----	504	488	432	461	357	687	399	334	428	300	456	465	461	639	575	553	392	---	400	439	549	658	617	562	493	630	598	617	600	72	457	410
August 12----	496	692	611	701	634	683	706	652	663	604	695	540	579	618	701	710	622	---	620	430	646	680	324	698	364	664	610	404	625	372	180	111
Averages-----	492	589	444	545	473	704	516	495	575	579	597	603	494	540	---	625	509	---	593	514	504	622	522	622	589	637	512	559	566	219	431	344
Departures---	-3	+82	-20	+57	+43	---	---	+41	+84	+24	+95	-14	+63	+62	---	+85	+29	---	+72	-7	---	---	---	---	+21	+26	---	---	+39	-69	+100	+20
August 13----	668	709	620	562	565	579	662	575	624	619	660	551	594	654	528	620	576	---	510	418	175	659	379	617	713	534	478	557	192	307	431	367
August 14----	548	672	576	461	361	699	466	418	599	590	441	656	506	474	557	427	551	---	634	429	242	582	682	645	307	400	248	547	399	370	524	338
August 15----	629	576	577	643	537	718	---	552	510	629	659	662	485	597	645	664	383	---	486	551	132	331	537	519	694	330	114	614	617	0	528	302
August 16----	607	479	555	610	521	669	489	500	245	630	350	576	505	566	672	500	443	---	347	547	660	486	623	572	134	661	577	471	530	273	461	262
August 17----	544	629	521	551	490	668	509	460	555	636	533	719	499	347	616	634	463	---	406	664	265	312	722	443	685	633	592	625	501	390	432	355
August 18----	360	139	374	423	467	669	---	467	321	610	380	638	122	666	633	442	235	---	421	567	308	692	607	215	348	518	570	345	285	406	444	125
August 19----	271	522	422	365	308	661	222	310	144	588	125	393	427	540	603	138	316	---	65	543	393	282	724	61	706	644	529	676	470	382	464	169
Averages-----	518	532	521	517	464	666	470	469	428	614	450	599	448	549	608	489	427	---	410	531	311	478	610	439	512	531	444	548	428	304	469	274
Departures---	+62	+46	+70	+48	+55	---	---	+3	-20	+84	-52	+1	+24	+87	+3	-36	-4	---	-62	+14	---	---	---	---	-34	-32	---	---	-41	+31	+143	+34
August 20----	308	701	281	181	123	672	81	124	405	562	278	636	552	668	---	151	550	---	542	636	393	673	706	149	699	634	572	623	439	359	291	151
August 21----	665	670	614	697	631	641	678	630	656	592	674	595	542	569	---	700	589	---	636	641	401	223	628	499	610	624	548	364	621	367	452	62
August 22----	515	646	455	561	481	567	---	496	380	444	575	691	269	365	558	636	352	---	304	469	153	551	622	651	648	568	290	557	301	242	427	120
August 23----	504	641	487	453	357	440	---	390	541	445	569	389	488	491	393	521	543	---	545	474	111	411	585	547	297	340	270	191	607	147	344	378
August 24----	486	614	449	498	444	663	---	508	543	465	543	601	514	558	563	611	530	---	540	407	161	429	649	491	566	489	372	475	332	79	27	364
August 25----	482	613	400	481	428	657	---	426	349	499	514	545	329	189	613	441	457	---	553	674	579	540	548	562	528	611	514	171	540	312	155	120
August 26----	506	464	482	525	414	638	---	447	405	585	420	662	304	85	625	412	139	---	209	128	576	615	437	416	657	605	543	584	343	355	267	143
Averages-----	495	621	453	485	411	611	---	432	497	513	510	589	428	418	550	496	451	---	476	490	339	492	597	473	572	553	444	424	455	266	281	191
Departures---	+29	+117	-8	+7	+13	---	---	-6	+27	-9	+65	-7	+29	-32	---	+30	+30	---	+52	+10	---	---	---	---	+11	-4	---	---	+1	-22	-13	-69
August 27----	541	517	528	528	446	629	---	454	484	487	508	676	313	146	463	406	339	---	246	265	496	381	657	202	552	613	523	663	504	250	399	301
August 28----	538	505	494	588	541	635	---	581	319	581	422	351	333	308	609	575	247	---	242	92	596	143	559	136	542	589	558	165	498	258	392	205
August 29----	241	519	310	349	337	612	---	324	298	575	227	651	292	93	612	410	181	---	80	322	403	418	589	107	592	597	551	577	446	326	361	176
August 30----	272	194	238	322	249	590	---	---	---	553	260	654	182	41	---	388	176	---	537	511	519	467	613	637	618	593	554	573	457	386	265	215
August 31----	141	196	114	107	59	603	---	---	---	550	119	634	147	508	575	121	129	---	219	547	556	447	649	149	632	593	528	560	503	410	344	183
September 1--	225	459	232	234	207	607	---	---	---	555	189	639	96	514	566	167	388	---	459	575	568	581	641	376	571	578	519	519	478	218	411	68
September 2--	454	186	475	422	307	591	---	---	409	551	439	633	383	565	---	597	488	---	563	557	443	561	633	444	608	578	529	559	455	351	290	138
Averages-----	345	368	341	364	306	609	---	---	378	550	309	605	249	311	565	381	285	---	335	410	511	428	620	293	588	591	538	517	477	314	352	184
Departures---	-71	-64	-68	-39	-59	---	---	---	-72	+56	-37	+59	-78	-104	---	-25	-82	---	-33	-17	---	---	---	---	-55	+35	---	---	+18	-17	+96	-48

Accumulated Departures January 1 to September 2, 1950

	-3108	+4963	-5264	+2954	+2590	---	---	---	---	+3934	---	---	+945	+3787	---	---	-231	---	---	---	---	---	---	---	---	---	---	---	---	---	+10003	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

W.B.O., Washington, D.C.---11/23/50---2400

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, August 1950

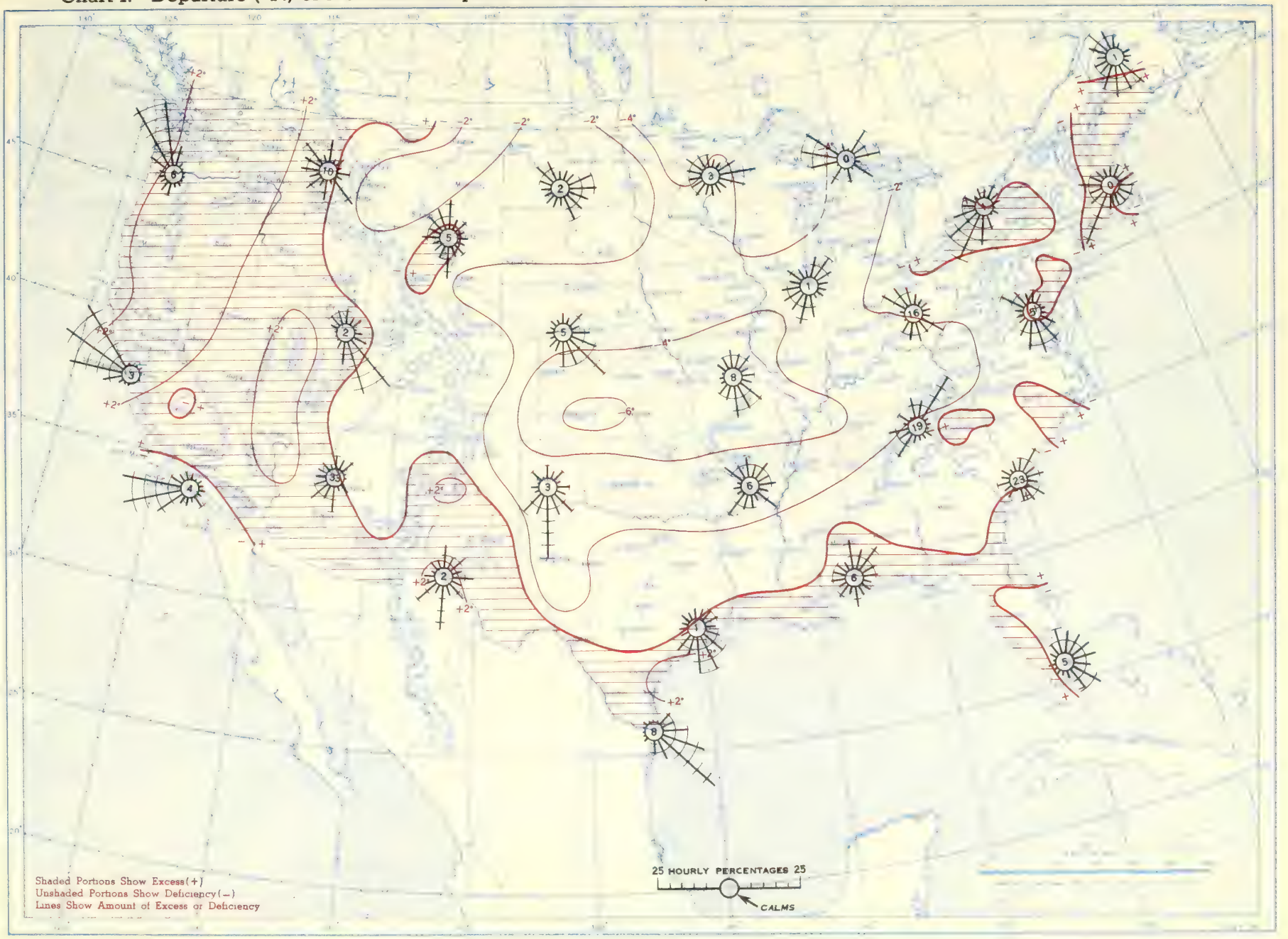


Chart II. Tracks of Centers of Anticyclones, August 1950. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart III. Tracks of Centers of Cyclones, August 1950. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time) Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, August 1950



Chart V. Total Precipitation, Inches, August 1950. (Inset) Departure of Precipitation from Normal

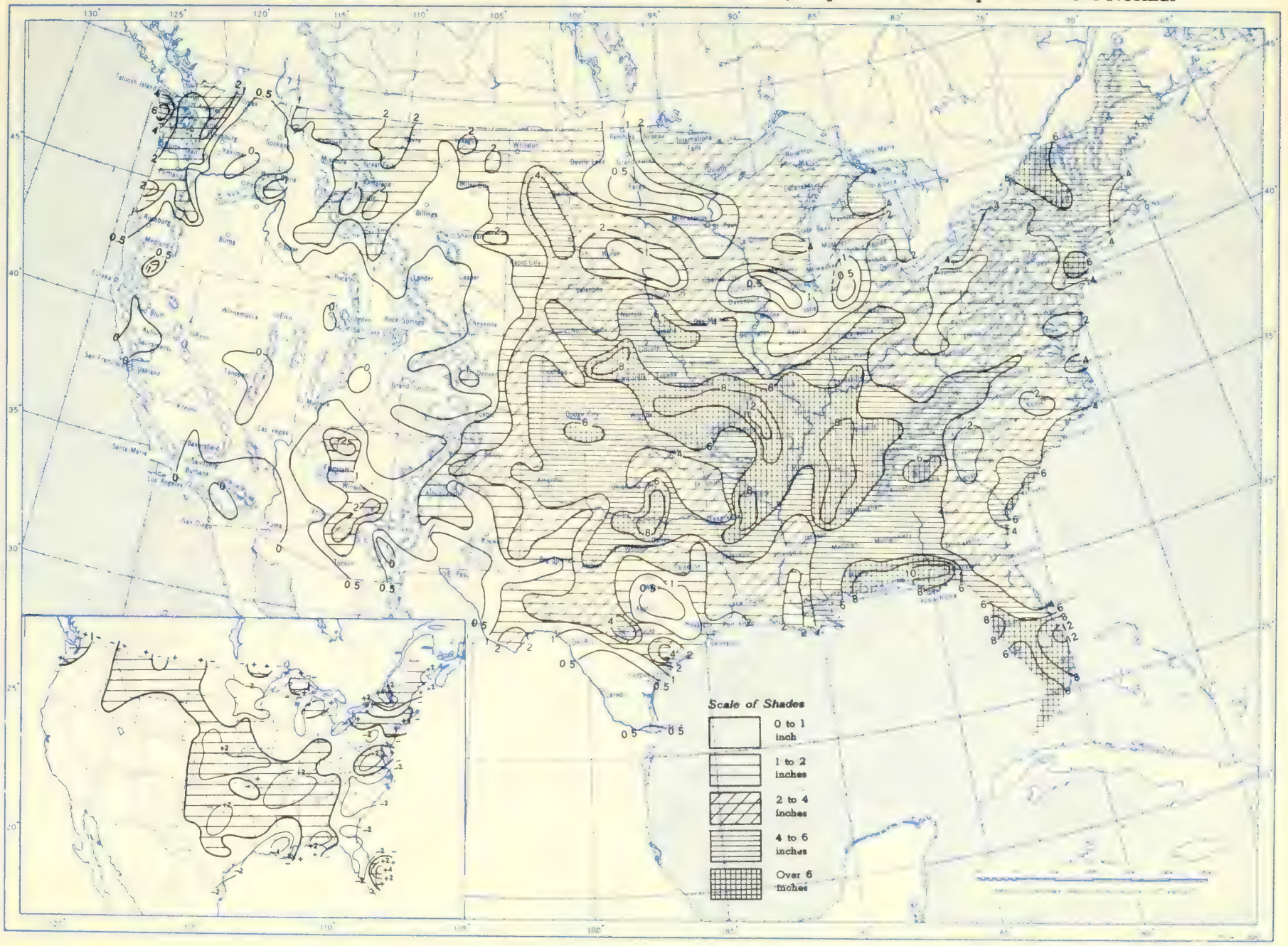
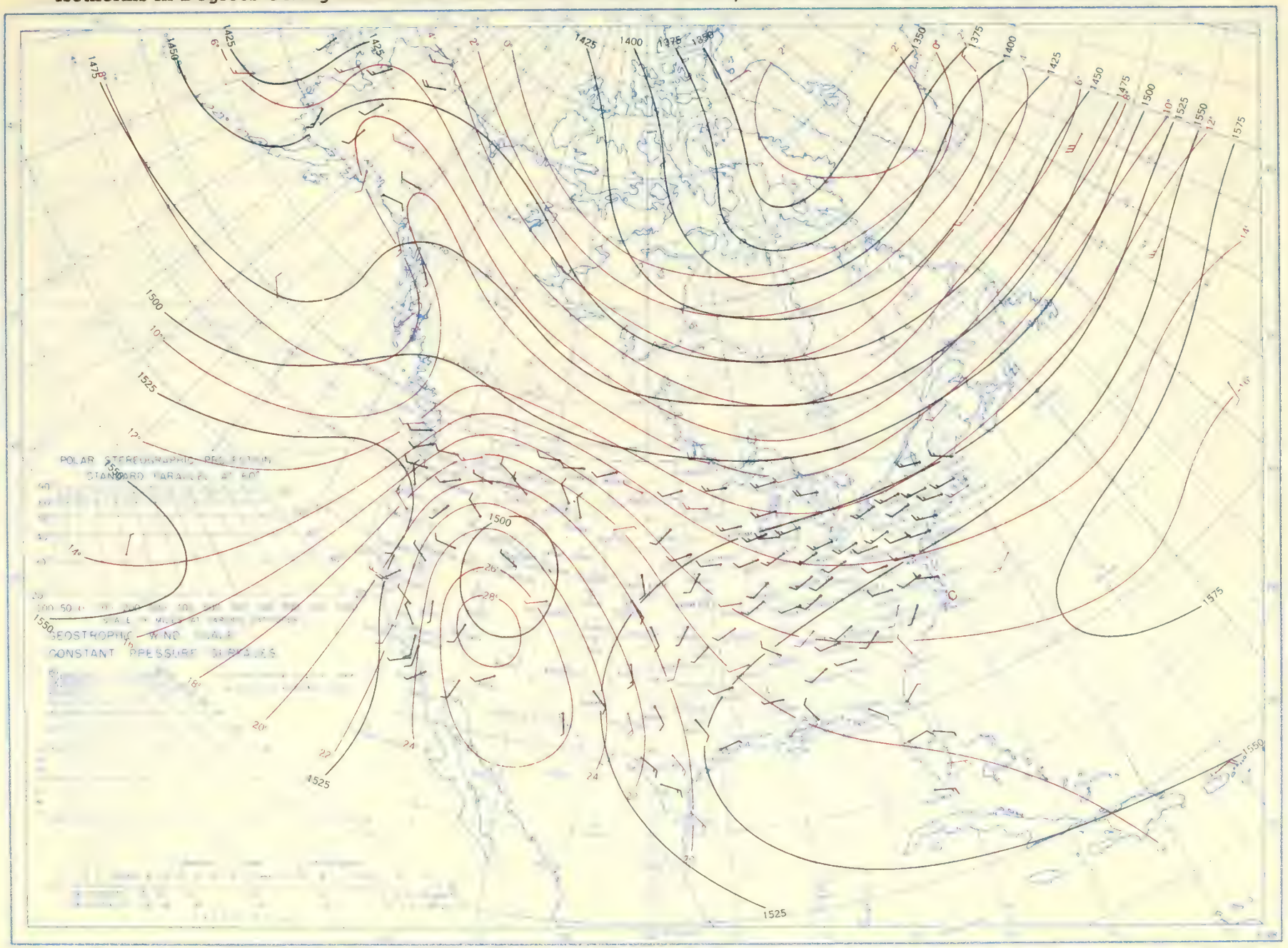


Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., August 1950

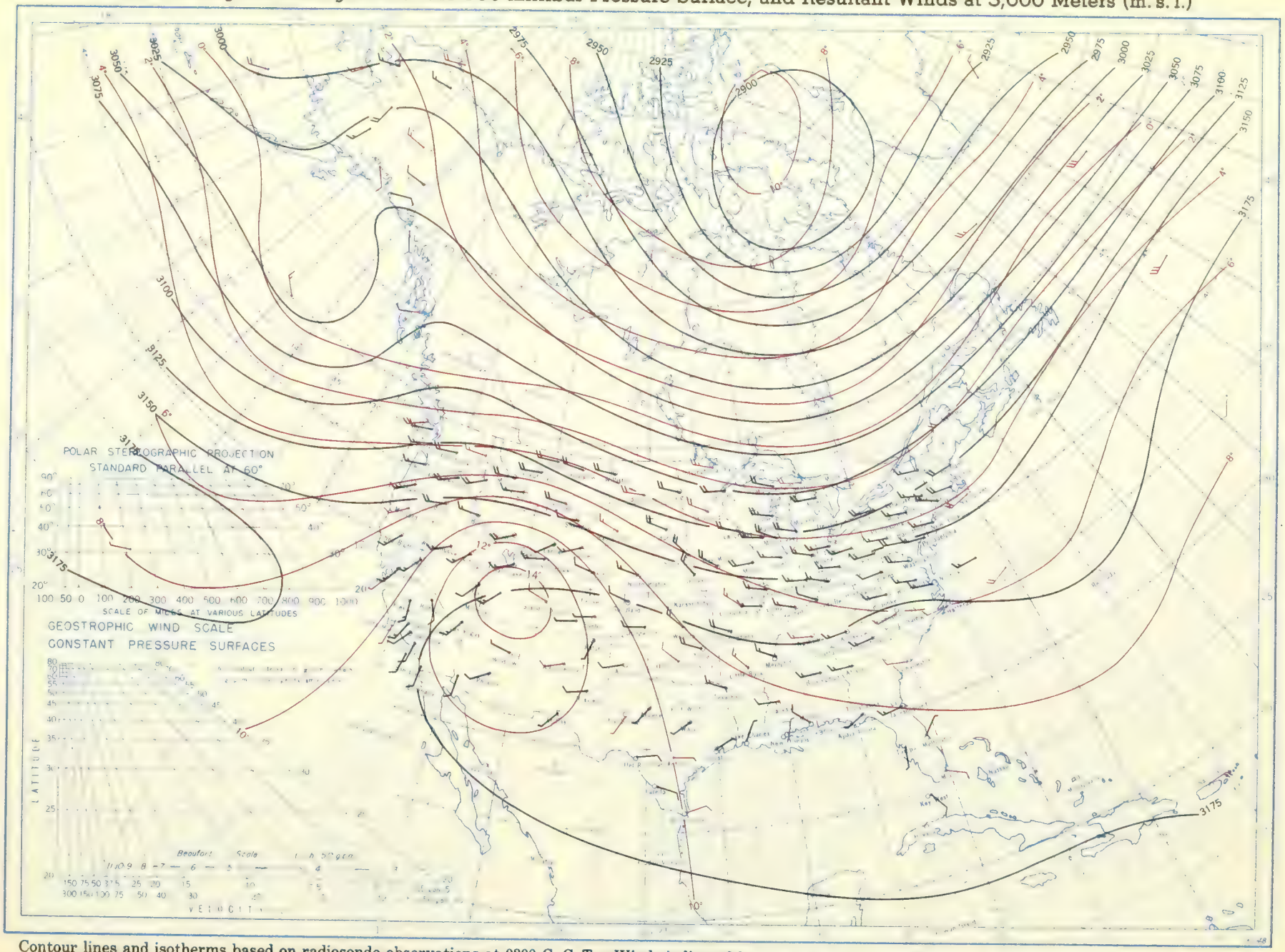


Chart VIII, August 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

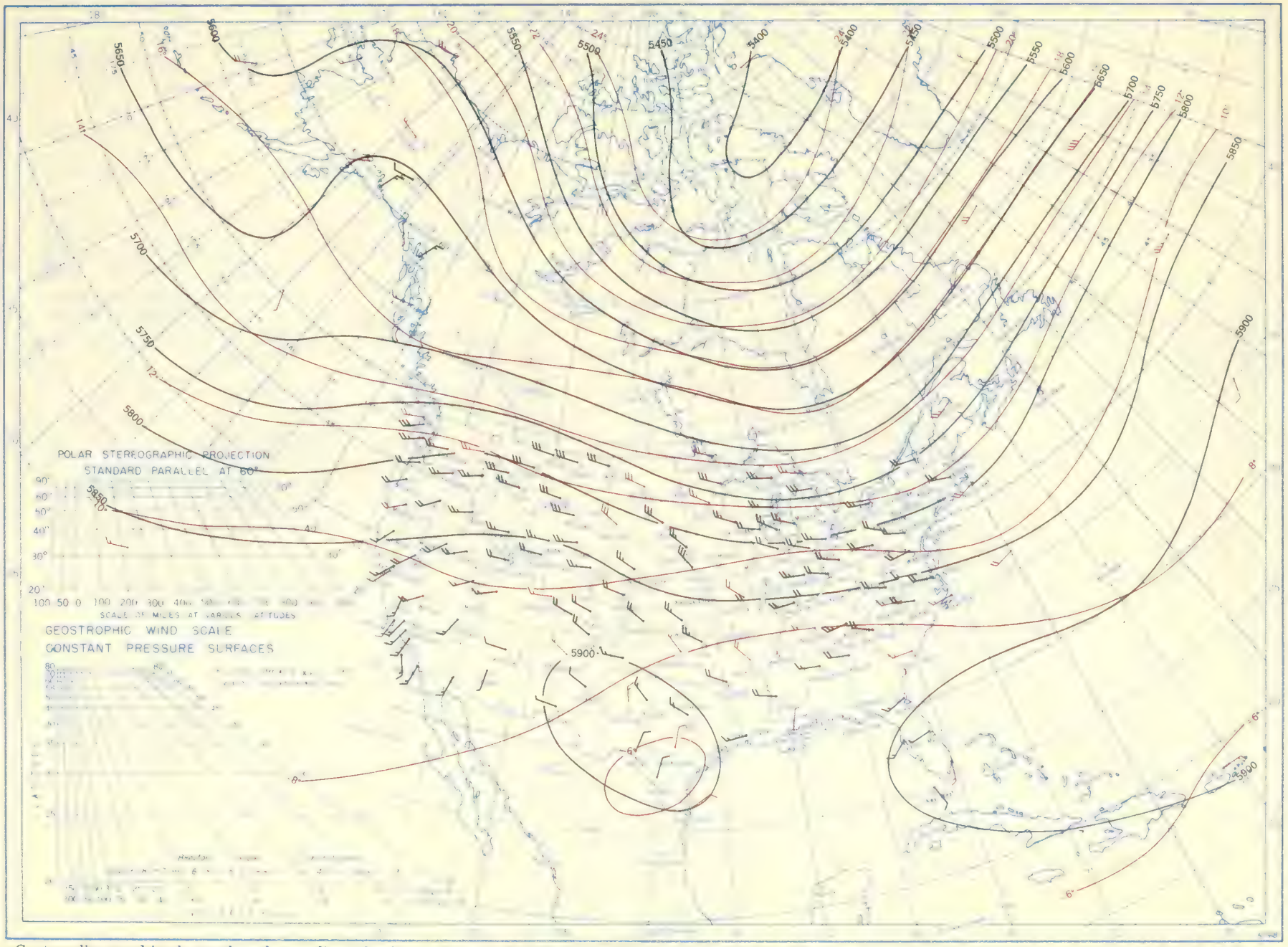
Chart IX, August 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

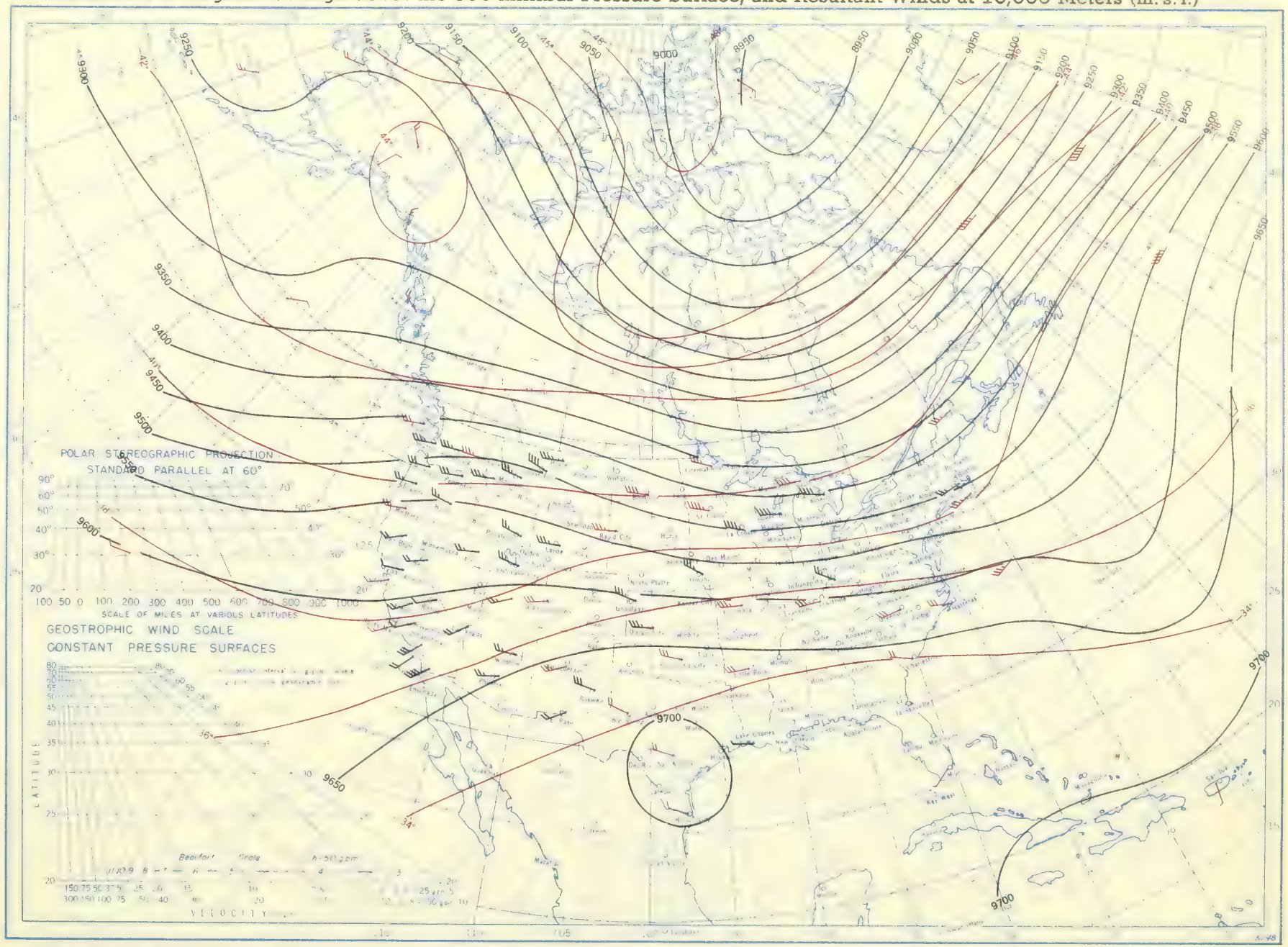
Chart X, August 1950 Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean

Chart X, August 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, August 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

SEPTEMBER 1950
Volume I No. 9

WASHINGTON: 1950

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CHARTS I-XI

NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA
NATIONAL SUMMARY

Volume I No. 9

SEPTEMBER 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

For the country as a whole, this was the coolest September since 1929. The weighted United States average temperature for the month was 64.6°, which is 1.4° below the mean for the past 58 years, 1.7° warmer than the coolest September of 1918, and 1.5° cooler than the warmest September of 1931.

Chart I in the back of this publication shows that temperatures averaged above normal west of the Continental Divide, along the Northern Border west of the Great Lakes, in Florida, southeastern Georgia, and the southern half of Texas, and below normal elsewhere. Plus departures exceeded 6° at a few stations in southern Texas, while minus departures exceeded 4° at a few stations in the central Great Plains and extreme Northeast; elsewhere, departures from normal were slight.

West of the Continental Divide a late summer heat wave, the longest and most intense of the year, which began about the middle of August and reached its peak during the first week in September was one of the outstanding features of the month's weather. Daytime temperatures rose to record-breaking heights in the interior region west of the Divide from Border to Border. At Mecca, Calif. on the 2d a temperature of 126° established a new all-time September high for the United States. Other State records included 110° in Idaho on the 3d and 107° in Montana on the 4th. A maximum of 115° in Nevada on the 2d and again on the 3d equalled the record for that State. Yuma and Phoenix, Ariz.; Red Bluff, Calif.; Missoula and Helena, Mont.; and Pocatello, Idaho — all recorded new September highs; also, the September high at Salt Lake City, Utah was equalled. In addition, 118° at Phoenix, Ariz., and 123° at Yuma, Ariz., on the 1st were the highest temperatures ever recorded at those stations for any month.

Few outstanding low temperatures were recorded. The lowest temperature of the month was 7° at Bondurant, Wyo., on the 28th, while a September low of 37° for Fresno, Calif. was recorded on the 30th. An unusually cold Canadian air mass overspread the eastern two-thirds of the country from the 23d to the 25th, reducing temperatures to record low levels for those dates and for so early in the season at a few scattered stations in north-central areas and several stations in the Southeast.

The 1950 average precipitation for the United States was 2.63, only 0.26 of an inch above the 58-year mean. Average precipitation by sections ranged from 3.35 inches above normal in Maryland and Delaware to nearly 2 inches below normal in Missouri. The greatest monthly amount was 26.40 inches which fell at Cedar Key, Fla., while 80 stations in California and a few other scattered stations in the far West recorded none. Monthly totals of 14.02 inches at Waldorf Police Barracks, Md. and 13.83 inches at Clay, W. Va. were unusually large for September in those sections of the country.

Precipitation was fairly well distributed through the month, but geographically departures from the normal amounts showed considerable irregularities. Sections along the central Gulf Coast, in the central Great Plains and Lake Region, and extreme Northwest received much below normal amounts, while sections of the Great Basin of the far West, the northern Great Plains, and central and south Atlantic coastal areas received large excesses.

Except for the Lake Region, rain fell east of the Mississippi during the first 2 or 3 days, with heavy amounts in scattered areas of the Appalachians and in a belt extending from the lower Ohio Valley to New England. Some 24-hour amounts in southern Indiana exceeded 5 inches. The heaviest rains of the month were associated with a tropical disturbance during the period 3d to 7th. Heavy rain began in the southern portion of the Florida Peninsula on the 3d and gradually spread northward into Alabama, Georgia, and the Carolinas. Twenty-four hour amounts exceeding 10 inches were measured in Florida. From the 7th to the 10th scattered, light showers fell in the Southwest, and in the northern and central Rockies at intervals from the 9th through the 16th. Moderate to heavy rains fell in the central and north Atlantic coastal areas on the 11th and 12th during the passage of an Atlantic hurricane off the coast. During the last half of the month a few scattered, locally heavy rains due to thunderstorms occurred in the eastern half of the country, and near the end of the period some heavy rains fell in western Washington.

The greatest number of lives lost and the greatest property damage as a result of storms was caused by hurricanes. On the 5th northwestern Florida experienced one of its worst hurricanes on record. Wind gusts reached a speed of 125 m.p.h. and over 20 inches of rain fell in the Cedar Key area. The path of this hurricane was unusual in that it described a loop near Cedar Key and this city was in the calm center for 2 1/2 hours. There were 29 casualties, and over $3,000,000 damage. On September 11 and 12 an Atlantic hurricane passed near the New England Coast, causing 13 casualties and over $2,000,000 damage, mostly in Massachusetts. Hailstorms caused almost as much damage as hurricanes, due mainly to 4 severe storms in the cities of Joplin, Mo.; Logansport, Ind.; Oklahoma City, Okla.; and Phoenix, Ariz. Damage amounted to $2,000,000 in Joplin, Mo. Stones 3 inches in diameter were reported to have fallen in Phoenix and Joplin.

During the last week of the month a layer of smoke from smoldering forest fires in northern Alberta and adjacent areas in Canada, following an invasion of cold Canadian air into north-central areas on the 22d, was carried over a large section of the northeastern United States and along the Atlantic Coast to Florida by northwest winds. Pilots reported the base of the smoke layer at 10,000 to 14,000 feet between Washington and New

York. In Pennsylvania pilots reported the base no lower than 17,000 feet and the top above 25,000 feet, indicating a thickness of well over a mile. The smoke reduced sunshine and gave the sky a peculiar appearance for several days. But the most spectacular effects were produced on the 24th in extreme eastern Michigan, northeastern Ohio, and most of Pennsylvania, where a period of darkness lasting 1 1/2 to 2 hours began in eastern Michigan about noon and reached eastern Pennsylvania about 5:30 p.m. According to observers in the field the degree of darkness was such that artificial lighting was necessary for normal activities, wildlife appeared bewildered, and birds and chickens went to roost. Before and after the period of darkness the sky appeared in various shades of different colors. Not since August 1910 when smoke from forest fires in Idaho necessitated the use of artificial light during the day over a broad belt extending from Idaho to northern Vermont has a similar phenomenon occurred over such a large area in the United States.

In the Pacific States the weather was mostly favorable for agriculture, especially the maturity and harvests of fall crops. Wheat harvest was finished by the end of the month, and seeding the new crop made normal progress despite a need of more moisture for best germination.

In the Rocky Mountain States soil moisture was adequate east of the Continental Divide and the fall grain crop was sown and up to good stands, and ranges were satisfactory. Cold, wet weather in Idaho and Montana, however, delayed the harvesting of fall crops and the remnants of the grain crops. Due to earlier freezes the Utah peach and pear crops were the smallest in history and the date crop in Arizona was only 60 percent of normal. Hot weather in California, Arizona, and New Mexico was favorable for cotton and picking was under way. In Arizona a bumper crop was expected.

Corn continued to make slow progress due to relatively cold weather, but a large precentage in the main Belt was safe from frost. Corn was damaged locally on the 24th and 25th in southwestern Minnesota, northern Iowa, and northern Illinois. Wet weather, especially during the first decade, was unfavorable for cotton in the Main Cotton Belt, and weevils caused further damage especially in the northern portion. Except for cotton, crops east of the Mississippi were on the whole satisfactory, and livestock were in good condition.

CONDENSED CLIMATOLOGICAL SUMMARY

Table 1 — SEPTEMBER 1950

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	73.0	-2.5	Eufaula	96	15	Belle Mina 2N	40	25	4.13	+0.83	Montgomery WB AP	8.83	Selma	1.30
Arizona	70.0	-2.5	Yuma WB	123	1	Maverick	18	16	.83	-.50	Grey Peak	3.22	5 Stations	.00
Arkansas	70.1	-4.0	Magnolia 5N	95	12	2 Stations	33	25	5.35	+2.03	Grannis	15.86	Viola	1.29
California	68.8	-.7	Mecca	126	2	Boca	10	30	.38	-.02	Covelo	2.98	80 Stations	.00
Colorado	56.7	-1.2	Delta	100	1	Pearl	13	27	1.65	+.32	Akron CAA	5.15	Wetmore 8 SW	.11
Florida	78.9	-.5	3 Stations	97	†13	4 Stations	56	†9	8.02	+1.21	Cedar Key	26.40	Tallahassee WB AP	.73
Georgia	73.3	-2.5	Camilla	97	16	Blairsville	39	26	4.98	+1.17	Savannah USDA Pl.	17.57	Quitman	.80
Idaho	57.9	+.6	2 Stations	110	3	Grouse	14	28	1.16	+.18	Anderson Dam 1SW	3.17	Payette	.08
Illinois	65.7	-2.0	do	92	†19	6 Stations	31	†24	3.25	-.39	Sidell	9.08	2 Stations	.70
Indiana	64.7	-2.6	Evansville	94	19	3 Stations	29	†24	5.25	+1.97	Greencastle	14.32	Hobart	1.80
Iowa	63.0	-1.4	Atlantic 1E	92	19	Decorah 2S	24	24	2.03	-1.98	Independence	9.02	Sioux City WB	.07
Kansas	66.6	-3.4	Atwood	96	29	Horton	34	25	1.35	-1.58	Haddam	7.86	McAllaster	T
Kentucky	67.2	-3.0	Benham	92	3	2 Stations	33	25	5.01	+2.10	Morehead State College	12.61	Middlesboro R.R.Sta.	1.90
Louisiana	76.5	-1.4	Clinton No. 1	98	†12	Camp Polk	48	30	3.26	-.66	Burrwood	9.73	Donaldsonville	.06
Maryland-Delaware	64.8	-2.8	5 Stations	93	†1	New Germany	29	24	6.76	+3.35	Waldorf Police Brks.	14.02	Ocean City	2.76
Michigan	58.2	-1.8	Lake City Exp. Fm.	89	9	Watersmeet US Forest	19	24	3.25	-.05	Milford	9.08	Watersmeet US Forest	.81
Minnesota	60.8	+.9	Canby	92	2	Moose Lake 1SE	25	24	2.59	-.23	Hallock	5.87	Ortonville Swg. Pl.	.64
Mississippi	73.7	-2.1	Tylertown	98	22	Duck Hill	40	25	4.04	+.92	Booneville	9.10	Utica	.61
Missouri	66.5	-2.8	3 Stations	92	19	Marble Hill	28	25	2.01	-1.99	Browning	6.05	Sweet Springs	.10
Montana	54.5	-1.1	2 Stations	107	4	Harlowton	10	30	1.69	+.36	Savage	5.17	Galata 13S	.02
Nebraska	62.3	-2.2	Nenzel 19S	97	2	Chadron AP	27	28	2.22	-.12	Minden	6.05	Humphrey	.00
Nevada	61.2	-1.6	2 Stations	115	†2	2 Stations	10	30	.76	+.34	Mt. Charleston Lodge	1.86	Lehman Caves, N.M.	.08
New England	56.5	-3.7	do	90	†1	do	12	†22	2.02	-1.69	Nelson, N.H.	6.27	Block Island, R.I.	.40
New Jersey	62.9	-3.0	Hammonton	92	1	do	29	†18	3.34	-.39	Seabrook	9.91	Woodcliff Lake	1.35
New Mexico	63.9	-1.4	Jal	102	13	5 Stations	22	†13	2.10	+.25	Hobbs	7.86	Hickman	.15
New York	57.8	-3.4	Shrub Oak	90	8	Salisbury	21	25	3.02	-.45	Frankfort	6.48	West Jasper	.87
North Carolina	69.5	-1.4	2 Stations	100	3	Transou	29	†25	4.35	+.27	Point Lookout	16.75	Cherokee	1.13
North Dakota	57.9	+.8	Grenora	100	†4	Medora TRNMP	23	29	2.42	+.89	Pembina CAA	6.38	Towner	.83
Ohio	63.7	-1.9	10 Stations	89	†1	Kenton 2W	28	24	4.25	+1.31	St. Martin Ursuline Sch.	9.22	Cambridge SCS	1.05
Oklahoma	70.7	-3.5	Hollis	98	20	Purcell	39	7	3.29	+.14	Signal Mtn. Tower	10.66	Newkirk	.36
Oregon	59.6	+.9	The Dalles	107	3	Chemult	9	30	.78	-.41	Cascade Locks	3.90	2 Stations	.00
Pennsylvania	60.8	-3.2	Port Clinton	94	2	Donegal	27	24	3.76	+.34	Mercersburg	7.81	Galeton	1.24
South Carolina	72.0	-2.6	Cheraw	97	4	Dillon 4SW	36	†25	4.96	+.81	Georgetown	11.31	Crescent	2.29
South Dakota	60.2	-1.4	Van Metre	99	2	Deerfield Dam	17	28	2.75	+1.20	Parkston	7.32	Ellingson	.34
Tennessee	68.4	-3.0	2 Stations	93	†2	Allardt	34	25	4.11	+.93	Point Pk.Lookout Mtn.	10.32	Hartford	.67
Texas	75.2	-2.1	do	106	†11	Dumas	41	30	3.64	+.65	Jefferson	13.70	2 Stations	.00
Utah	60.3	-.6	do	110	1	Woodruff	15	28	.91	-.13	Silver Lake Brighton	3.10	Fruita	T
Virginia	66.0	-2.5	3 Stations	97	†3	2 Stations	27	26	5.69	+2.42	Kerr's Creek	12.71	Big Knob	1.49
Washington	60.4	+1.5	Richland 2NW	106	3	Bumping Lake	18	†7	.97	-.67	Cedar Lake	5.41	3 Stations	.00
West Virginia	63.9	-2.3	Brownsville	92	10	Cranberry Glades	22	26	5.64	+2.63	Clay No. 1	13.83	Lindside	1.62
Wisconsin	58.8	-1.1	Alma Dam No. 4	88	1	Land O'Lakes	18	24	2.01	-1.71	Dodgeville	6.32	Blair	.15
Wyoming	54.0	-.8	3 Stations	102	†2	Bondurant	7	28	2.33	+1.13	Crowheart 4SE	6.29	Arvada 3N	.58
Puerto Rico	78.5	-.1	Guayama	96	1	Guineo Reservoir	56	†9	5.40	-3.08	Guineo Reservoir	12.11	Lajas,Hda.Maria Luisa	1.06

† Other dates also.

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
ALABAMA																																
Anniston	599	994.2	1016.4	82	61	71.5	-2.6	91	3	47	26	1	0	64	--	6.06	-----	3.08	9	5	0.0	0.0	---	---	---	---	---	---	---	---	---	---
Birmingham	610	991.2	1016.0	81	63	71.8	-1.4	91	†3	53	24	2	0	63	80	2.50	-0.88	1.22	13	3	U	U	6.3	ENE	28	NE	6	5	9	16	7.2	48
Mobile CO	10	------	------	--	--	----	----	--	--	--	--	--	--	----	----	-----	-----	-----	-	-	---	---	---	---	32	W	22	---	---	---	---	56
Mobile	211	1006.8	1014.7	86	68	76.8	----	93	17	59	8	13	0	67	79	7.05	-----	5.54	10	9	0	0	10.1	N	--	---	---	7	15	8	5.6	--
Montgomery	198	1007.8	1014.9	84	64	74.2	-2.1	92	4	56	26	8	0	65	79	8.83	+5.84	4.87	9	6	0	0	6.1	ENE	24	NE	6	6	12	12	6.7	68
ARIZONA																																
Flagstaff	6993	789.4	1017.9	71	38	54.7	----	90	1	27	20	1	7	34	52	.89	-----	.44	7	7	T	0	6.9	S	--	---	---	14	9	7	4.0	--
Payson CO	4999	849.0	1015.2	83	51	66.6	----	101	1	40	20	3	0	41	44	1.17	-----	.47	6	9	T	0	4.7	NE	--	---	---	17	7	6	3.7	--
Phoenix CO	1083	------	------	--	--	81.9	-.8	---	--	---	--	--	--	---	---	-----	-----	-----	-	-	---	---	---	--	35	SW	18	---	---	---	---	89
Phoenix	1108	971.2	1011.2	98	66	82.2	----	118	1	56	22	28	0	49	37	.49	-.26	.29	3	3	T	0	5.1	E	--	---	---	21	7	2	2.2	--
Prescott	5014	847.6	1014.0	81	50	65.1	----	101	1	38	20	3	0	37	41	1.72	-----	.87	6	6	T	0	9.0	SSW	29	NW	2	21	4	5	2.9	83
Tucson	2585	924.1	1011.8	92	64	78.3	-1.4	107	1	55	23	24	0	43	33	1.15	-.03	1.13	2	3	T	T	6.9	SSE	46	S	7	19	8	3	2.5	89
Winslow	4880	852.4	1011.9	83	50	66.5	-1.4	99	1	40	20	3	0	36	39	.72	-.06	.43	7	7	0	0	8.7	SW	*40	ENE	3	18	8	4	3.4	--
Yuma	203	1003.7	1008.8	101	70	85.6	----	123	1	62	22	29	0	51	35	.45	-----	.45	2	4	0	0	8.2	SSE	38	S	7	23	5	2	1.6	92
ARKANSAS																																
Fort Smith	458	999.3	1015.6	81	63	71.8	-2.2	90	19	50	25	1	0	63	82	3.80	+.81	1.24	9	8	0	0	5.0	NE	38	SE	15	--	--	--	7.4	48
Little Rock	257	1006.1	1015.7	78	64	71.2	-2.9	88	19	48	25	0	0	64	85	6.77	+3.60	2.81	10	6	T	0	6.0	NW	44	NW	11	--	--	--	7.4	41
Texarkana	361	1002.4	1015.3	80	64	72.1	-5.3	89	18	54	25	0	0	66	86	7.26	+4.68	2.13	11	7	0	0	7.1	NE	--	---	---	4	10	16	7.0	--
CALIFORNIA																																
Bakersfield	489	994.6	1012.3	89	61	74.7	+.5	109	2	46	30	11	0	48	43	.61	+.48	.56	2	3	0	0	5.7	WNW	--	---	--	19	10	1	2.3	--
Beaumont CO	2589	923.8	1012.8	85	53	69.0	----	109	2	43	19	8	0	46	53	.37	-----	.37	1	4	0	0	7.0	WNW	*25	E	20	22	6	2	2.4	--
Bishop	4108	873.0	1012.2	85	49	66.9	----	106	2	34	30	8	0	--	--	.53	-----	.39	6	4	0	0	---	---	--	---	--	17	6	7	4.0	--
Blue Canyon	5280	839.8	1012.9	70	52	60.9	----	93	1	34	30	3	0	36	44	.50	-----	.42	3	6	0	0	7.3	WSW	--	---	---	12	11	7	4.7	--
Burbank	699	986.8	1012.9	80	57	68.5	----	98	1	50	30	4	0	56	72	.55	-----	.47	4	1	0	0	5.1	S	*18	SSE	19	11	13	6	4.8	--
Eureka CO	43	1014.9	1017.3	60	51	55.5	-.4	67	26	43	30	0	0	--	--	.35	-.66	.24	3	0	0	0	5.2	---	21	N	†28	7	8	15	6.5	43
Fresno	331	1000.7	1012.3	87	57	72.2	+.2	107	2	37	30	10	0	52	53	.13	-.08	.13	1	1	0	0	6.6	NW	22	W	29	17	7	6	3.8	87
Los Angeles CO	312	------	------	--	--	68.9	-.1	---	--	--	--	--	--	--	--	.38	+.21	-----	-	-	-	-	---	---	17	W	†18	--	--	--	---	60
Los Angeles	99	1009.8	1013.3	73	60	66.1	-----	87	3	54	30	0	0	58	79	.11	-----	.10	2	1	0	0	4.7	WSW	--	---	--	7	15	8	5.7	--
Mt. Shasta CO	3543	892.7	1015.2	77	46	61.0	+2.2	101	2	26	30	4	1	43	58	2.08	+1.21	.86	8	6	T	0	5.3	NW	--	---	--	13	8	9	4.8	--
Oakland	3	1014.2	1014.6	74	56	64.9	+3.0	97	2	41	30	5	0	52	70	.01	-.40	.01	1	0	0	0	6.2	W	--	---	--	12	10	8	4.6	--
Red Bluff	341	999.7	1012.2	89	62	75.2	+2.1	114	1	45	30	13	0	43	38	.17	-.63	.10	3	1	0	0	7.2	SSE	28	NW	28	15	6	9	4.2	85
Sacramento	25	1010.2	1012.6	86	56	71.0	+1.7	108	2	47	30	9	0	51	56	.35	-.03	.35	1	1	0	0	9.6	SW	24	SW	†9	16	9	5	3.6	86
Sandberg CO	4517	862.5	1012.4	75	54	64.6	----	98	2	39	30	4	0	38	45	.10	-----	.10	1	1	0	0	16.4	NNW	--	---	--	22	6	2	2.4	--
San Diego	19	1010.2	1013.2	73	62	67.5	-.7	81	20	57	20	0	0	58	76	T	-.08	T	0	1	0	0	6.1	WNW	22	NW	3	14	9	7	4.8	58
San Francisco CO	52	------	------	---	--	----	----	---	--	---	--	--	--	---	---	-----	-----	-----	-	-	---	---	---	---	---	---	---	---	---	---	---	71
San Francisco	1	1013.5	1014.3	74	54	63.9	+3.9	93	2	41	30	3	0	52	72	.11	+.01	.11	1	0	0	0	12.6	W	34	W	26	13	9	8	4.1	--
Santa Catalina	1568	957.0	1012.4	73	56	64.5	----	98	4	51	25	2	0	--	--	.09	-----	.08	2	0	0	0	---	---	--	---	--	13	10	7	4.4	--
Santa Maria	231	1005.4	1014.1	74	52	63.1	----	93	27	38	30	2	0	53	76	.05	-----	.03	3	0	0	0	6.0	W	--	---	--	11	11	8	4.7	--
COLORADO																																
Alamosa	7534	774.5	1018.0	71	37	54.1	----	82	1	27	15	0	9	--	--	.55	-----	.19	6	8	T	T	---	---	--	---	--	12	14	4	4.8	--
Colorado Springs	6175	813.8	1016.7	70	48	58.8	----	86	2	42	11	0	0	44	65	2.82	-----	1.06	12	11	1.0	1	10.8	ESE	--	---	--	7	11	12	5.6	--
Denver	5221	838.5	1015.2	73	48	60.5	-1.1	91	1	40	28	2	0	42	58	1.58	+.10	.56	8	4	0	0	8.0	S	40	S	8	10	12	5.7	60
Grand Junction	4849	859.5	1012.8	78	54	66.2	0	97	1	42	20	4	0	39	42	1.05	+.13	.76	6	8	0	0	9.1	ESE	57	NW	14	9	12	9	5.4	66
Pueblo	4799	857.8	1014.4	76	51	63.9	-.7	91	2	40	26	2	0	47	62	1.39	+.64	.60	7	10	T	0	5.9	SE	29	SW	30	7	12	11	6.0	62
CONNECTICUT																																
Bridgeport	7	1018.0	1018.7	70	54	62.0	----	85	1	37	25	0	0	54	77	1.50	-----	.59	4	1	0	0	8.5	NE	*28	NE	11	5	8	17	6.8	--
Hartford	15	1012.5	1018.5	70	50	60.3	-1.4	87	1	33	25	0	0	53	79	1.09	-2.40	.35	3	0	0	0	6.0	NNE	24	N	11	6	5	19	7.0	43
New Haven	6	1014.2	1018.3	70	53	61.2	-.6	82	1	37	25	0	0	--	--	1.09	-2.15	.55	9	1	0	0	6.5	---	26	NE	11	5	9	16	6.8	51
DELAWARE																																
Wilmington	73	1015.2	1018.5	72	55	63.4	----	89	1	38	25	0	0	58	82	7.06	-----	2.29	9	3	0	0	6.1	E	--	---	--	3	5	22	8.0	--
FLORIDA																																
Apalachicola	13	1012.5	------	83	71	77.3	-1.2	91	13	64	7	3	0	--	--	1.39	-6.70	.50	10	1	0	0	---	---	37	N	5	14	5	11	5.0	55
Daytona Beach	33	1012.5	1014.1	86	71	78.6	-.3	93	15	63	21	4	0	72	86	5.86	-.61	2.01	12	4	0	0	10.5	NE	*32	SE	6	12	9	9	5.6	--
Fort Myers	15	1012.5	1013.0	89	72	80.5	0	93	†14	69	9	18	0	72	81	8.32	+.87	3.27	13	6	0	0	8.3	E	--	---	--	13	10	7	4.7	--
Jacksonville	18	1013.5	1014.5	88	72	79.6	+1.3	95	15	64	21	14	0	70	77	16.74	+9.39	10.17	15	1	0	0	8.3	NE	52	NE	6	5	14	11	6.5	56
Key West CO	5	------	------	--	--	----	----	---	--	---	--	--	--	---	---	-----	-----	-----	-	-	-	-	---	---	42	NE	3	--	--	--	---	72
Key West	6	1011.9	1012.3	88	76	82.2	+.3	91	15	70	3	7	0	73	78	8.37	+1.67	2.91	16	6	0	0	11.3	E	--	---	--	7	17	6	5.4	--
Lakeland	214	------	------	87	72	79.3	-1.0	94	14	69	23	8	0	--	--	8.96	+2.52	3.54	12	3	0	0	---	---	--	---	--	9	14	7	5.4	--
Melbourne	22	1012.5	1013.8	87	73	79.9	+.2	94	16	68	23	5	0	73	83	3.91	-4.09	1.46	9	5	0	0	10.5	ENE	*30	ESE	3	13	9	8	5.0	--
Miami CO	----	------	------	--	--	----	----	---	--	---	--	--	--	---	---	-----	-----	-----	-	-	-	-	---	---	--	---	--	--	--	--	---	72
Miami	8	1012.2	1013.0	88	74	81.0	----	92	15	70	9	9	0	73	80	3.86	-----	1.16	18	7	0	0	9.0	NE	32	SSE	3	13	12	5	5.2	--
Miami Beach	----	------	------	86	78	81.7	----	89	16	71	3	0	0	--	--	1.63	-----	.37	8	--	0	0	---	---	--	---	--	11	16	3	---	--
Orlando	111	1009.1	1013.6	89	71	80.2	+.3	96	17	66	21	17	0	71	81	7.93	+1.23	3.14	14	4	0	0	10.1	ENE	*42	E	6	8	12	10	5.8	--
Pensacola CO	----	------	------	85	70	77.4	-.6	92	22	62	8	6	0	--	--	3.23	-2.10	1.97	10	5	0	0	---	---	24	S	2	9	11	10	5.6	73
Pensacola	13	1010.2	1014.2	---	--	----	----	---	--	---	--	--	--	68	--	-----	-----	-----	-	-	-	-	8.3	NE	--	---	--	--	--	--	---	--
Tallahassee	64	1011.9	1014.4	86	68	77.0	+.6	93	14	62	9	10	0	66	76	.73	-4.75	.59	5	0	0	0	6.3	NE	--	---	--	6	13	11	6.1	--
Tampa	24	1011.2	1012.5	88	72	80.2	+.3	94	17	68	21	15	0	71	80	9.79	+3.37	4.67	13	5	0	0	8.4	NE	45	S	5	17	6	7	4.6	74
West Palm Beach	14	1011.9	1012.9	89	74	81.6	-.4	94	15	70	10	15	0	73	79	8.63	-.34	2.68	16	9	0	0	8.7	NE	--	---	--	9	14	7	5.4	--
GEORGIA																																
Albany	190	1008.5	1015.4	86	66	75.8	----	94	2	58	27	14	0	65	76	2.32	-----	.76	9	3	0	0	5.1	NNE	45	NNE	5	12	8	10	5.6	--
Atlanta	977	975.3	1016.0	80	63	71.4	-1.4	89	3	49	26	0	0	62	77	3.61	+.57	2.72	7	0	0	0	8.1	ENE	34	NE	7	6	14	10	6.5	55
Atlanta	798	988.2	------	80	62	71.2	----	91	3	45	26	2	0	--	--	3.37	-----	1.14	6	3	0	0	---	---	--	---	--	6	13	11	6.4	--
Augusta	426	1011.5	1016.8	83	62	72.7	-2.6	92	1	46	26	4	0	64	81	4.45	+1.02	2.24	9	2	0	0	6.0	NE	--	---	--	8	10	12	6.1	--
Columbus	382	1002.0	1015.8	83	63	73.1	----	91	4	54	26	3	0	65	81	1.60	-----	.98	6	2	0	0	6.5	NE	--	---	--	6	12	12	6.4	--
Macon	354	1002.7	1015.6	84	64	73.9	----	91	†1	51	26	9	0	64	76	2.46	-----	1.37	7	2	0	0	7.7	NE	34	NE	7	6	11	13	6.6	61
Rome	637	993.9	1017.1	81	61	70.7	----	91	†3	44	26	2	0	63	83	6.93	-----	4.34	12	4	0	0	6.2	N	--	---	--	4	5	21	7.6	--
Savannah	38	1013.2	1015.4	84	68	76.1	+1.8	92	15	57	26	7	0	67	78	17.30	+11.89	10.34	10	1	0	0	8.9	NNE	37	NE	6	5	13	12	6.5	62
Valdosta	200	1006.8	1014.6	85	66	75.5	-3.0	94	2	59	27	13	0	67	--	1.23	-3.45	.28	9	3	0	0	9.1	NE	--	---	--	10	9	11	6.0	--
IDAHO																																
Boise	2842	918.4	1013.3	77	50	63.2	+2.0	101	2	32	27	4	2	41	47	.92	+.39	.75	4	1	0	0	10.3	SE	35	NW	25	13	8	9	4.8	71
Lewiston	1413	929.9	1014.8	80	49	64.3	----	103	2	31	29	3	1	40	46	.49	-----	.20	7	2	0	0	5.9	E	--	---	--	14	7	9	4.2	--
Pocatello	4444	863.2	1014.4	73	45	59.1	-.2	96	3	25	31	5	3	37	48	.81	+.07	.55	6	5	T	T	6.6	SW	34	SE	17	12	10	8	4.8	67
ILLINOIS																																
Cairo CO	314	1003.4	1015.9	76	62	69.2	-3.3	88	19	44	25	0	0	--	--	3.29	+.40	.93	13	2	0	0	6.8	---	24	NE	5	--	--	--	7.6	48
Chicago	618	993.6	1018.3	73	57	64.9	0	85	18	40	24	0	0	55	79	2.00	-1.20	1.25	7	3	0	0	7.6	NNE	26	NW	†18	7	6	17	6.8	58
Joliet	580	996.6	1018.1	74	52	63.3	-.5	85	3	35	24	0	0	56	86	2.79	-.98	1.35	5	2	0	0	7.6	N	--	---	--	6	9	15	6.5	--
Moline	589	996.3	1018.7	74	54	64.1	+.2	85	18	36	24	0	0	55	81	3.85	+.27	1.99	7	4	0	0	6.7	NE	30	SW	18	6	10	14	6.2	54
Peoria	659	995.6	1017.8	75	56	65.8	-.1	85	9	39	25	0	0	57	82	3.49	-.54	1.59	10	4	0	0	8.8	ENE	32	S	21	6	9	15	6.5	54
Springfield	598	994.6	1017.6	76	56	65.7	+.9	86	21	39	24	0	0	58	83	1.35	-2.29	.68	7	3	0	0	8.4	NE	41	W	21	--	--	--	6.5	55
INDIANA																																
Evansville	385	1002.0	1017.7	76	58	67.2	-.5	89	19	37	25	0	0	60	85	2.97	-.52	.98	10	3	0	0	6.1	NNE	24	NE	†5	--	--	--	7.1	64
Fort Wayne	801	987.5	1018.6	72	53	62.6	-.5	81	10	32	24	0	1	55	85	5.23	+2.17	4.60	8	4	0	0	5.2	NE	20	SW	†18	3	10	17	7.0	46
Indianapolis	796	988.5	1017.9	74	55	64.6	-.8	87	1	35	25	0	0	58	85	4.96	+1.56	2.20	9	3	0	0	7.5	SE	38	N	21	--	--	--	6.4	53

See footnotes at end of table.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb.*	*Mb*	°F	°F	°F.	°F.	°F		°F				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			*0—3*	*4—7*	*8—10*	*0—10*	%
South Bend	768	990.2	1018.1	73	53	63.0	-2.5	83	9	33	24	0	0	55	83	3.07	-0.28	0.87	10	3	0.0	0.0	9.9	E	*33	NNW	21	7	7	16	6.7	--
Terre Haute	585	997.0	1018.0	75	55	65.4	-2.9	85	19	35	25	0	0	58	86	2.81	-.81	1.01	12	4	0	0	5.3	SE	26	NW	21	--	--	--	6.7	47
IOWA																																
Burlington	605	992.2	1017.7	76	54	64.8	-1.6	87	18	36	24	0	0	57	85	1.29	-3.17	.55	6	3	0	0	8.6	NE	27	SW	18	8	8	14	6.3	56
Charles City CO	1013	982.7	1019.6	72	51	61.5	+.5	85	18	34	24	0	0	--	--	2.54	-1.14	1.02	9	3	0	0	5.0	---	20	S	27	12	8	10	4.9	60
Davenport CO	579	996.3	------	74	56	65.2	-.4	84	3	40	24	0	0	--	--	1.58	-2.00	1.01	5	5	0	0	---	---	--	---	--	--	--	--	---	--
Des Moines CO	800	------	------	---	--	---	---	---	--	---	--	--	--	--	--	---	---	---	--	--	-	-	---	---	26	SW	18	--	--	--	---	63
Des Moines	800	986.8	1018.0	77	53	65.2	-.1	89	19	38	24	0	0	53	73	.41	-3.26	.34	4	0	0	0	7.3	SSE	--	---	--	11	6	13	5.3	--
Dubuque CO	641	991.9	1017.3	73	54	63.6	-.4	85	18	37	24	0	0	--	--	2.72	-1.29	2.21	8	3	0	0	4.7	---	27	E	21	--	--	--	5.8	59
Sioux City	1097	976.3	1017.1	76	50	63.1	+.6	89	1	36	24	0	0	53	77	.07	-2.96	.04	3	1	0	0	8.1	ESE	34	S	30	12	6	12	5.1	81
KANSAS																																
Concordia CO	1375	967.5	------	77	56	66.5	-1.8	90	19	44	12	1	0	--	--	1.55	-1.05	1.13	6	4	0	0	6.1	---	31	E	28	13	7	10	4.2	61
Dodge City	2594	928.9	1015.5	77	56	66.2	-3.2	88	29	46	22	0	0	53	72	.49	-1.41	.19	8	5	0	0	11.7	S	42	SW	29	10	9	11	5.5	71
Goodland	3645	891.0	1015.6	76	49	62.3	-4.0	91	29	39	24	3	0	50	72	.79	-.81	.33	6	5	0	0	12.2	SSE	*28	SSE	17	11	8	11	5.4	--
Topeka	879	985.1	1017.0	78	55	66.7	----	90	19	38	25	1	0	57	79	2.35	-----	1.11	3	4	0	0	7.5	NE	33	S	15	--	--	--	5.9	67
Wichita	1372	967.8	1015.8	78	59	68.3	-2.3	87	19	49	12	0	0	57	75	1.04	-2.05	.56	5	4	0	0	11.5	S	34	S	29	--	--	--	5.8	70
KENTUCKY																																
Lexington	979	982.4	1018.0	75	56	65.7	-2.8	85	1	37	25	0	0	58	81	4.28	+1.21	1.70	13	7	0	0	7.9	ENE	--	---	--	5	8	17	6.9	--
Louisville	485	1005.4	1017.4	77	58	67.6	-1.4	88	1	36	25	0	0	59	78	3.06	+.28	.97	9	5	0	0	5.7	NE	27	S	21	5	9	16	6.7	54
LOUISIANA																																
Baton Rouge	64	1011.5	1014.3	88	68	77.6	-.7	93	4	59	7	14	0	67	78	.57	-3.99	.20	7	3	0	0	6.0	E	--	---	--	--	--	--	5.0	--
Lake Charles	12	1012.5	1013.6	88	68	78.1	-.2	96	14	60	8	11	0	69	84	5.45	+1.04	2.06	8	8	0	0	5.5	N	--	---	--	--	--	--	5.4	--
New Orleans CO	12	------	------	---	--	---	---	---	--	---	--	--	--	--	--	---	-----	---	--	--	-	-	---	---	18	E	30	--	--	--	---	59
New Orleans	12	1012.2	1014.2	88	71	79.2	----	92	16	62	8	11	0	69	79	.98	-----	.41	8	4	0	0	7.7	E	--	---	--	--	--	--	4.2	--
Shreveport	174	1008.8	1014.5	83	66	74.6	-2.7	91	21	58	8	5	0	67	85	3.84	+1.04	1.62	7	5	0	0	7.7	NNE	40	SW	16	--	--	--	6.0	69
MAINE																																
Caribou	624	993.6	1017.2	62	39	50.2	-2.3	81	17	23	22	0	10	42	77	1.26	-2.33	.47	10	0	T	T	12.2	SSW	*45	W	23	4	11	15	6.9	--
Eastport	33	1014.2	1016.9	60	47	53.7	-2.1	78	7	36	25	0	0	--	--	1.10	-1.68	.53	7	0	0	0	8.6	---	40	NE	12	8	6	16	6.7	55
Portland	61	1013.9	1017.6	66	43	54.5	-3.4	81	7	27	26	0	4	49	85	1.82	-1.28	1.11	8	2	0	0	7.4	NNE	37	NE	12	9	4	17	6.5	56
MARYLAND																																
Baltimore CO	14	------	------	---	--	---	---	---	--	---	--	--	--	--	--	---	-----	---	--	--	-	-	---	---	39	NW	10	--	--	--	---	24
Baltimore	146	1014.2	1019.0	73	57	65.0	----	90	1	40	25	2	0	58	82	5.93	-----	2.33	11	2	0	0	9.2	E	--	---	--	5	6	19	8.0	--
Frederick	294	------	------	75	56	65.2	----	88	1	39	24	0	0	--	--	7.16	-----	2.01	15	1	0	0	---	---	--	---	--	---	--	--	---	--
MASSACHUSETTS																																
Boston	12	1012.9	1018.1	69	54	61.5	-1.7	86	1	38	25	0	0	50	70	.89	-2.25	.24	8	1	0	0	10.8	SW	48	NE	12	8	7	15	6.4	54
Nantucket	43	1016.9	1017.4	66	54	59.9	-2.9	81	10	43	8	0	0	54	82	5.74	+3.29	4.42	7	0	0	0	11.6	SW	72	NE	11	5	7	18	7.3	48
Pittsfield	1153	976.3	1018.6	65	45	54.7	-2.7	81	9	30	25	0	1	--	--	2.81	-1.21	1.33	12	1	0	0	6.4	---	--	---	--	6	5	19	7.3	--
MICHIGAN																																
Alpena CO	587	996.3	1019.0	63	49	55.8	-1.8	74	30	34	24	0	0	--	--	3.78	+.80	1.34	11	2	0	0	9.3	---	33	NW	23	7	1	22	7.2	36
Detroit	619	991.9	1018.5	72	54	63.1	+.7	83	9	36	24	0	0	54	79	2.21	-.69	.82	8	4	0	0	7.5	E	30	SW	18	--	--	--	6.3	52
Escanaba CO	594	996.3	1018.6	63	49	56.1	-1.0	74	9	32	24	0	1	--	--	2.13	-1.19	.65	9	2	0	0	10.3	---	34	N	23	--	--	--	5.8	52
Grand Rapids	638	993.2	1018.7	70	51	60.5	+.5	82	9	29	4	0	1	53	83	1.15	-2.38	.37	7	3	0	0	8.2	E	34	SW	18	--	--	--	6.5	49
Lansing	859	986.8	1019.1	70	51	60.2	-1.5	81	9	31	24	0	1	53	85	3.02	+.11	1.37	7	3	0	0	11.5	NE	42	SW	18	--	--	--	6.4	53
Marquette CO	677	991.2	1018.6	65	49	57.0	-.5	85	7	35	24	0	0	--	--	2.01	-1.24	.90	9	1	T	T	7.8	---	26	SW	18	--	--	--	6.8	58
Muskegon	627	995.3	1018.6	69	51	59.9	-2.3	80	9	28	24	0	1	54	86	1.23	-1.97	.35	10	3	0	0	7.3	NE	--	---	--	7	8	15	6.6	--
Sault Ste.Marie	721	995.9	1019.0	64	44	54.0	0	77	7	30	17	0	1	47	86	1.59	-1.95	.38	11	0	T	T	7.6	E	30	SW	18	--	--	--	7.2	44
Ypsilanti	722	989.8	1018.5	73	53	62.8	----	85	9	34	24	0	0	53	80	2.18	-----	.77	9	4	0	0	9.6	NE	*25	SSW	19	8	8	14	6.5	--
MINNESOTA																																
Duluth	1128	965.1	1018.6	65	45	54.8	----	81	25	30	24	0	2	47	83	1.43	-----	.58	8	2	0	0	10.8	ENE	56	NE	21	--	--	--	6.1	55
Intern'l Falls	1179	976.3	1017.8	66	43	54.5	-.8	83	25	30	24	0	3	47	83	3.50	+1.11	1.05	11	5	T	T	---	---	--	---	--	6	6	18	7.0	--
Minneapolis	830	984.1	1017.5	73	52	62.6	+1.2	86	8	36	24	0	0	51	73	1.46	-1.67	.60	6	4	0	0	9.2	E	31	SE	30	--	--	--	5.0	60
Rochester	1014	981.4	1018.6	73	49	60.7	0	81	18	31	24	0	1	51	78	1.71	-1.77	.86	8	1	0	0	7.6	S	--	---	--	10	6	14	5.8	--
St. Cloud	1034	980.0	1017.9	72	46	59.2	-.8	83	1	30	24	0	1	48	75	1.79	-1.32	.74	7	2	0	0	6.2	S	--	---	--	13	4	13	5.2	--
St. Paul	703	991.5	1017.7	73	52	62.4	+1.1	83	8	35	24	0	0	52	73	1.77	-1.30	.65	7	2	0	0	8.5	SE	27	SSE	30	13	5	12	5.1	--
MISSISSIPPI																																
Jackson	315	1003.4	1015.1	85	65	75.1	-1.9	94	4	52	25	8	0	66	79	1.53	-1.38	.75	9	3	0	0	6.5	ESE	34	NW	11	7	7	16	6.8	49
Meridian	294	1002.0	1015.3	83	64	73.7	+.7	93	4	53	25	8	0	66	82	2.47	-.49	1.37	7	3	0	0	5.3	E	--	---	--	6	6	18	7.1	--
Vicksburg	234	1010.2	1015.0	82	66	73.9	-2.4	91	4	53	25	3	0	67	83	2.69	-.18	1.81	9	5	0	0	6.0	NNW	22	N	7	6	9	15	6.8	58
MISSOURI																																
Columbia CO	733	------	------	---	--	---	---	---	--	---	--	--	--	--	--	---	-----	---	--	--	-	-	---	---	--	---	--	---	--	--	---	61
Columbia	733	988.5	1017.0	76	57	66.1	-2.7	88	19	42	25	0	0	58	86	1.91	-2.44	1.35	7	3	0	0	7.9	SSE	22	WSW	21	--	--	--	5.7	--
Kansas City	741	982.4	1016.9	78	58	67.9	-1.0	90	19	45	25	1	0	57	75	2.48	-1.34	1.89	4	3	0	0	6.8	NNE	26	SW	18	--	--	--	5.4	58
St. Joseph	809	982.4	1016.9	78	55	66.4	-2.0	90	19	39	25	1	0	57	79	1.19	-2.73	1.13	2	6	0	0	7.8	SSE	30	SW	18	11	6	13	5.1	61
St. Louis CO	465	------	------	---	--	---	---	---	--	---	--	--	--	--	--	---	-----	---	--	--	-	-	---	---	29	NW	21	--	--	--	---	52
St. Louis	465	996.6	1016.8	76	59	67.3	-1.5	90	19	40	25	1	0	58	80	2.62	-1.75	.64	9	2	0	0	6.5	NE	--	---	--	--	--	--	6.7	--
Springfield	1265	969.5	1016.7	75	57	65.9	-2.5	86	19	41	25	0	0	59	85	2.04	-1.48	.74	8	5	0	0	9.6	SSE	35	NW	14	5	9	16	6.6	63
MONTANA																																
Billings	3568	893.0	1016.2	69	46	57.4	-2.8	100	4	26	30	4	2	38	55	1.46	-----	.60	11	1	4.4	4	9.5	NNE	42	NW	26	12	6	12	5.0	57
Butte	5553	832.0	1019.4	63	34	48.1	-3.6	91	3	14	30	2	16	33	62	1.32	+.48	.75	9	2	2.9	1	7.4	S	--	---	--	8	6	16	6.3	--
Glasgow CO	2090	942.4	1016.8	72	45	58.1	+.8	100	4	29	29	7	2	42	62	3.30	+2.21	1.31	11	0	.3	T	---	---	--	---	--	12	6	12	5.3	--
Great Falls	3663	890.3	1016.8	67	45	55.8	-2.1	94	3	25	30	3	2	35	51	.31	-1.13	.19	6	1	2.1	1	9.4	SW	55	W	26	10	7	13	5.6	68
Havre CO	2488	928.2	1016.9	72	42	56.9	+.5	97	3	29	30	4	1	--	--	.93	-.36	.25	9	2	T	T	6.7	---	34	W	26	9	12	9	5.1	64
Helena	3893	875.7	1017.7	67	41	54.0	-1.4	96	3	21	30	4	2	38	60	.99	-.26	.56	8	4	.9	1	5.8	WSW	41	W	26	9	11	10	5.5	61
Kalispell	2965	913.3	1016.1	71	39	54.9	----	94	3	25	28	2	6	37	--	.54	-----	.38	2	3	T	0	7.7	NE	--	---	--	15	9	6	3.6	--
Miles City	2629	933.0	1016.7	71	47	58.8	----	105	4	30	30	6	2	42	--	2.09	-----	.77	12	2	.7	1	8.9	NNE	--	---	--	14	5	11	5.1	--
Missoula	3201	903.5	1017.2	71	41	55.9	+2.4	98	3	30	28	3	6	38	56	.61	-.64	.31	3	2	T	T	6.0	SE	39	SW	3	14	7	9	4.7	65
NEBRASKA																																
Grand Island	1841	950.6	1016.1	76	51	63.5	----	89	1	37	12	0	0	51	73	.60	-----	.39	6	4	0	0	10.7	S	--	---	--	12	4	14	5.3	--
Lincoln CO	----	------	------	---	--	---	---	---	--	---	--	--	--	--	--	---	-----	---	--	--	-	-	---	---	25	S	30	--	--	--	---	65
Lincoln	1180	974.3	1017.0	76	52	64.0	-1.3	91	1	38	12	1	0	54	77	1.40	-1.58	.70	6	4	0	0	7.7	SE	--	---	--	--	--	--	5.1	--
Norfolk	1554	961.9	1017.2	75	51	62.7	-1.3	89	1	39	24	0	0	53	77	.86	-2.01	.59	6	1	0	0	9.0	S	--	---	--	--	--	--	5.3	--
North Platte	2783	918.1	1015.8	73	50	61.5	-.6	90	1	40	11	2	0	51	76	1.83	+.48	.67	9	4	0	0	9.2	SE	32	N	21	11	6	13	5.4	58
Omaha	978	977.7	1017.3	76	53	64.5	-1.2	88	18	41	12	0	0	54	75	.47	-2.74	.35	3	4	0	0	7.9	SSE	33	SE	19	--	--	--	5.3	59
Scottsbluff	3950	881.1	1015.9	72	48	60.1	-1.7	93	2	40	27	2	0	47	72	2.64	+1.34	.83	12	5	0	0	9.1	ESE	--	---	--	15	5	10	4.9	--
Valentine CO	2581	925.8	1017.3	71	49	60.1	-2.4	92	2	40	22	1	0	--	--	2.46	+1.16	.93	9	2	0	0	8.1	---	26	S	26	13	5	12	5.2	61
NEVADA																																
Elko	5075	845.2	1015.1	75	38	56.5	----	99	3	21	30	5	9	38	53	.59	-----	.20	8	8	T	0	5.1	SW	--	---	--	7	13	10	5.4	--
Ely	6257	810.0	1015.2	72	37	54.8	+2.4	93	1	18	30	3	9	--	--	.98	+.35	.35	7	9	0	0	9.8	---	45	SE	7	5	16	9	5.7	59
Las Vegas	2162	934.3	1008.6	93	64	78.2	+2.8	113	1	54	20	22	0	33	24	.62	+.29	.62	1	2	0	0	6.7	SW	--	---	--	20	7	3	2.5	83

See footnotes at end of table

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
Reno	4404	862.2	1014.1	77	42	59.4	+1.4	101	2	21	30	5	2	39	49	1.02	+0.76	0.80	4	3	0	0	4.9	N	38	W	10	10	11	9	5.2	68
Winnemucca	4299	867.6	1014.0	77	43	59.5	+.3	103	2	17	30	6	3	35	44	1.26	+.85	.47	8	6	T	T	7.0	---	38	SW	6	9	10	11	5.6	73
NEW HAMPSHIRE																																
Concord	339	1007.5	1018.3	68	44	55.6	-2.4	86	9	27	26	0	4	48	74	0.96	-2.49	.46	9	1	0	0	4.2	NW	31	N	11	8	3	19	6.8	47
Mt. Washington	6262	809.0	1022.4	45	33	38.9	-2.1	64	8	12	†24	0	13	--	--	4.97	-2.51	1.04	14	0	2.5	2	26.2	---	--	---	--	7	5	18	7.0	35
NEW JERSEY																																
Atlantic City	8	1015.9	1017.8	70	60	65.2	-1.6	85	2	42	25	0	0	--	--	5.83	+3.18	2.27	10	1	0	0	----	---	40	W	11	4	7	19	7.6	49
Newark	11	1017.3	1018.5	72	56	64.1	-2.4	90	1	39	25	1	0	55	75	1.75	-2.02	.64	8	0	0	0	8.2	NE	24	WSW	1	4	9	17	7.2	--
Trenton	56	1011.5	------	70	56	63.1	-3.8	87	1	40	25	0	0	--	--	2.71	-.69	1.22	11	2	0	0	----	---	24	NW	24	4	7	19	7.8	44
NEW MEXICO																																
Albuquerque	5310	849.6	1012.3	81	55	67.9	0	94	1	45	25	2	0	40	43	1.01	+.19	.26	9	6	0	0	9.0	SE	38	W	30	15	8	7	4.2	73
Clayton	4969	850.0	1015.1	75	52	63.1	-2.7	87	2	42	26	0	0	53	76	3.56	+1.72	1.20	11	8	1.5	2	13.1	NE	--	---	--	9	7	14	5.8	--
Raton	6379	807.7	1014.9	75	46	60.2	----	87	1	34	26	0	0	45	66	1.98	------	.86	11	9	T	0	8.6	SSW	--	---	--	7	13	10	5.7	--
Roswell	3611	891.3	1013.0	85	57	70.8	+.5	93	2	47	16	9	0	53	62	5.64	+3.53	2.11	10	10	T	T	7.0	SSE	29	NE	2	16	5	9	4.2	62
NEW YORK																																
Albany	277	1014.2	1017.9	68	48	58.2	-3.0	84	9	31	25	0	1	51	80	3.09	+.28	1.58	12	1	0	0	6.9	S	34	NW	16	5	9	16	7.0	43
Bear Mountain	1300	------	------	65	52	58.5	----	82	1	35	25	0	0	--	--	2.26	------	.65	11	0	0	0	----	---	--	--	--	5	9	16	7.1	--
Binghamton CO	858	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	-	-	----	---	19	N	1	--	--	--	---	32
Binghamton	828	986.8	1018.7	68	49	58.1	----	83	9	35	24	0	0	52	85	1.89	------	1.52	8	2	T	T	4.2	WSW	--	---	--	0	7	23	8.6	--
Buffalo	693	990.2	1018.4	70	52	60.7	-.9	87	9	38	24	0	0	52	78	1.95	-.97	.63	9	0	T	T	10.4	SE	34	NW	23	8	6	16	6.6	55
Canton	406	1001.4	1017.3	65	46	55.5	-3.3	78	9	30	25	0	2	--	--	1.81	-1.54	.59	9	0	0	0	6.3	---	23	E	11	7	7	16	6.7	31
New York CO	10	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	-	-	----	---	--	---	--	--	--	--	---	43
New York	19	1016.9	1018.6	72	58	64.9	----	88	1	42	25	0	0	54	72	2.02	------	1.17	7	0	0	0	10.8	NE	34	NE	†11	5	8	17	7.2	--
Oswego	292	1005.8	1018.0	65	52	58.5	-3.0	79	9	41	25	0	0	--	--	2.17	-.54	.91	10	0	0	0	8.1	---	26	NW	24	8	5	17	6.5	48
Rochester	543	999.0	1018.4	69	51	59.9	-2.5	85	9	38	24	0	0	52	79	1.81	-.64	.36	9	1	T	T	7.9	SW	30	W	24	6	7	17	6.9	48
Syracuse	399	996.6	1018.3	68	50	58.8	-1.5	86	9	37	20	0	0	51	79	4.22	+1.50	2.20	11	1	0	0	8.0	E	35	NW	24	7	3	20	7.2	44
NORTH CAROLINA																																
Asheville CO	2203	------	------	76	57	66.4	+1.4	88	3	41	26	0	0	--	--	2.25	-.79	.46	12	2	0	0	----	---	32	E	7	1	14	15	7.3	56
Asheville	----	944.8	1017.9	--	--	----	----	--	--	--	--	--	--	58	85	----	------	----	--	--	-	-	5.0	NNW	--	---	--	--	--	--	---	--
Charlotte CO	741	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	-	-	----	---	21	NE	7	--	--	--	---	74
Charlotte	753	989.8	1017.3	80	61	70.2	+.2	93	3	42	26	3	0	61	76	2.91	-.08	.99	9	5	0	0	7.0	NE	--	---	--	3	10	17	7.6	--
Greensboro	891	986.8	1017.7	78	59	68.4	-1.4	93	3	37	26	1	0	60	80	1.93	-1.32	.60	10	5	0	0	8.4	NE	27	NE	6	3	11	16	7.1	56
Hatteras	4	1015.9	1016.3	79	69	74.2	-.3	89	3	56	25	0	0	68	80	2.20	-2.41	.71	13	6	0	0	12.1	NNE	40	W	10	5	8	17	7.2	56
Raleigh CO	400	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	-	-	----	---	17	NE	6	--	--	--	---	41
Raleigh	438	1002.0	1018.4	80	60	70.0	----	98	3	37	26	6	0	61	80	3.73	------	1.65	11	6	0	0	5.5	NE	--	---	--	2	12	16	7.3	--
Wilmington CO	6	------	------	81	67	73.7	+.6	93	3	47	26	3	0	--	--	5.39	+.88	1.68	13	3	0	0	----	---	23	NW	14	2	14	14	7.1	53
Wilmington	30	1015.6	1016.8	--	--	----	----	--	--	--	--	--	--	67	--	----	------	----	--	--	-	-	6.4	NE	--	---	--	--	--	--	---	--
Winston-Salem	967	983.1	1018.1	78	59	68.4	-2.3	95	3	41	26	2	0	59	76	2.76	-.34	1.04	10	5	0	0	7.5	ENE	--	---	--	5	11	14	6.8	--
NORTH DAKOTA																																
Bismarck	1653	956.7	1016.9	71	46	58.9	+1.6	94	6	33	14	4	0	46	71	1.70	+.47	.75	8	4	T	T	9.4	SSE	34	NW	27	11	4	15	5.7	53
Devils Lake CO	1471	963.4	1016.3	69	47	57.8	+1.9	91	6	35	29	2	0	--	--	2.62	+.99	1.72	10	2	0	0	8.1	---	27	NW	27	--	--	--	4.8	66
Fargo	895	982.4	1016.3	72	49	60.4	+2.2	91	7	40	14	2	0	47	70	1.54	-.68	.60	10	3	0	0	12.2	S	36	W	27	--	--	--	5.3	77
Williston CO	1877	949.2	1016.0	69	46	57.3	+.7	97	4	32	30	2	1	44	68	2.62	+1.53	1.36	10	0	.5	T	6.1	---	31	W	27	--	--	--	5.8	65
OHIO																																
Akron	1210	973.9	1018.7	72	52	61.6	-2.7	84	10	35	24	0	0	53	79	2.68	-.65	1.16	10	6	0	0	6.6	SE	--	---	--	7	5	18	6.7	--
Cincinnati CO	553	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	-	-	----	---	--	---	--	--	--	--	---	38
Cincinnati	871	986.5	1018.1	74	55	64.7	----	86	1	35	25	0	0	57	80	8.25	------	3.30	11	7	0	0	5.9	SW	--	---	--	5	9	16	7.0	--
Cleveland	787	990.2	1018.0	74	55	64.5	+.7	85	10	40	24	0	0	54	74	3.84	+.51	1.22	9	4	0	0	8.7	SE	26	N	4	5	10	15	6.5	55
Columbus CO	724	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	-	-	----	---	--	---	--	--	--	--	---	45
Columbus	815	988.2	1018.0	75	54	64.2	-.6	87	1	33	25	0	0	55	78	2.09	-.78	.84	9	3	0	0	5.5	SE	*20	NNW	4	6	7	17	7.0	--
Dayton	1002	982.4	1018.4	73	55	64.1	-1.8	85	1	33	24	0	0	56	79	4.09	+1.18	2.26	10	4	T	T	7.8	SE	65	W	21	5	10	15	6.9	52
Sandusky	603	995.6	------	72	58	65.0	-.3	82	29	42	25	0	0	--	--	7.72	+4.76	4.28	11	5	0	0	6.7	---	18	SW	25	8	6	16	6.4	60
Toledo	621	995.6	1018.9	72	54	62.8	-.3	82	29	35	24	0	0	55	80	6.44	+3.64	2.32	11	7	T	T	8.1	NNE	33	NW	10	6	7	17	7.1	45
Youngstown	1178	976.0	1018.7	72	51	61.3	-2.0	82	10	37	24	0	0	53	80	3.17	+.29	1.25	11	4	0	0	7.5	SE	†26	NNW	23	7	8	15	6.2	--
OKLAHOMA																																
Oklahoma City CO	1254	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	-	-	---	---	20	S	28	--	--	--	---	63
Oklahoma City	1254	969.2	1015.0	81	62	71.0	-1.8	90	20	52	7	1	0	61	78	2.64	-.41	1.80	9	5	T	T	10.7	NE	--	---	--	--	--	--	6.5	--
Tulsa	672	991.2	1015.0	80	61	70.5	-2.4	89	20	51	7	0	0	62	80	1.51	-1.54	.92	6	7	0	0	9.2	S	29	NW	14	--	--	--	6.9	53
OREGON																																
Baker	3369	------	------	--	--	----	----	--	--	--	--	--	--	37	--	----	------	----	--	--	-	-	----	NNW	--	---	--	--	--	--	---	--
Baker CO	3446	895.7	1016.2	74	42	58.2	+2.2	99	2	26	28	3	4	--	--	.12	-.62	.12	2	0	0	0	6.1	---	23	N	29	12	9	9	4.3	78
Burns CO	4143	874.4	1015.1	75	44	59.7	+4.1	100	2	26	30	3	4	34	43	.23	-.64	.20	3	1	T	0	----	---	--	---	--	11	8	11	5.2	--
Eugene	364	1003.4	1016.9	77	47	62.1	----	95	2	33	29	3	0	49	68	.92	------	.50	3	0	0	0	7.2	N	--	---	--	12	10	8	4.6	--
Meacham	4050	877.8	1017.1	69	45	57.0	----	97	2	27	30	2	3	36	50	.80	------	.76	4	2	T	0	5.4	ESE	--	---	--	14	8	8	4.4	--
Medford	1314	968.5	1015.4	81	49	64.9	+1.4	102	1	29	30	5	2	49	57	.72	+.07	.53	5	3	0	0	5.6	NW	--	---	--	15	8	7	4.4	--
Pendleton	1489	962.1	1015.0	78	52	65.1	+3.3	101	2	36	29	3	0	38	40	.13	-.76	.13	2	1	0	0	7.2	SE	--	---	--	18	7	5	3.2	--
Portland CO	30	------	------	--	--	----	----	--	--	--	--	--	--	--	--	1.66	-.32	----	--	--	-	-	----	---	--	---	--	--	--	--	---	--
Portland	21	1015.2	1016.8	74	49	61.8	+1.3	91	21	36	30	2	0	51	72	1.45	------	.82	3	1	0	0	4.9	NNW	21	NW	7	14	9	7	4.6	66
Roseburg CO	479	998.0	1016.6	78	51	64.4	+1.5	96	1	35	30	3	0	--	--	.56	-.71	.35	4	0	0	0	3.9	---	16	N	†4	12	11	7	4.6	68
Salem	195	1009.1	1016.7	78	46	61.8	+.4	94	1	34	29	4	0	48	67	.84	-.79	.67	3	0	0	0	5.6	N	--	---	--	15	9	6	3.9	--
Sexton Summit CO	3836	------	------	70	48	59.2	----	90	1	30	29	1	1	--	--	1.16	------	.73	6	2	T	T	----	---	--	---	--	17	5	8	4.2	--
Troutdale	29	------	------	77	46	61.4	----	93	1	35	30	4	0	50	71	2.09	------	1.08	3	1	0	0	4.6	W	†23	E	21	17	6	7	4.1	--
PENNSYLVANIA																																
Allentown	381	1004.7	1018.8	70	53	61.6	-3.2	87	1	37	24	0	0	55	82	3.79	+.39	2.76	11	1	0	0	5.5	E	--	---	--	3	6	21	8.0	--
Curwensville	2215	------	------	64	47	55.9	----	76	8	30	24	0	1	50	86	2.95	------	.71	15	4	0	0	9.3	ESE	*25	WNW	23	2	5	23	8.4	--
Erie CO	655	------	------	69	57	63.0	-.6	82	9	46	24	0	0	--	--	4.48	+1.09	2.30	9	4	0	0	----	---	24	S	19	8	8	14	6.0	36
Harrisburg	335	1005.4	1018.9	70	55	62.8	-3.0	86	1	41	24	0	0	55	79	1.82	-1.23	.91	8	2	0	0	5.2	ESE	21	NW	15	--	--	--	8.3	40
Park Place	1932	------	------	65	51	57.6	----	79	8	33	24	0	0	--	--	2.87	------	1.35	11	0	0	0	----	---	--	---	--	3	2	25	8.4	--
Philadelphia CO	26	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	-	-	----	---	--	---	--	--	--	--	---	42
Philadelphia	13	1018.0	1018.5	72	57	64.5	-1.4	88	1	40	25	0	0	57	79	2.59	-.55	1.03	12	1	0	0	7.8	ENE	23	SW	1	3	6	21	8.1	--
Pittsburgh	1248	987.8	1018.2	72	55	63.9	-.8	84	10	40	†24	0	0	54	75	3.53	+.95	1.30	10	5	0	0	8.0	E	22	NW	23	--	--	--	7.0	40
Reading CO	266	1006.8	1018.6	71	57	63.9	-2.7	88	1	41	24	0	0	--	--	3.88	+.67	1.94	9	2	0	0	----	---	44	NW	23	2	7	21	8.2	31
Scranton CO	746	990.2	1019.0	68	52	60.3	-2.6	85	8	38	17	0	0	--	--	2.48	-.69	1.13	10	0	0	0	----	---	25	NW	16	3	8	19	7.6	29
Williamsport	527	1000.0	1019.0	69	52	60.6	-3.8	85	1	39	24	0	0	53	82	1.84	-1.44	.66	10	3	0	0	4.2	W	†26	WNW	23	1	8	21	8.2	--
RHODE ISLAND																																
Block Island	36	------	------	67	56	61.8	-1.6	78	1	45	25	0	0	--	--	.40	-2.26	.22	5	--	0	0	----	---	--	---	--	--	--	--	---	--
Providence	55	1012.2	1018.1	70	51	60.3	-1.2	†85	1	35	25	0	0	52	78	2.09	-1.09	1.05	9	1	0	0	7.6	NNE	34	NE	†11	5	10	15	6.6	44
SOUTH CAROLINA																																
Charleston CO	9	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	-	-	----	---	40	NE	6	--	--	--	---	54
Charleston	41	1014.2	1015.8	83	66	74.4	+.2	90	3	50	26	3	0	67	83	5.93	+.80	2.73	6	4	0	0	6.2	NE	--	---	--	6	12	12	6.3	--
Columbia CO	332	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	-	-	----	---	32	NE	6	--	--	--	---	63
Columbia	217	1008.1	1016.4	83	63	72.9	----	93	3	45	26	9	0	64	79	6.46	------	2.51	8	4	0	0	6.0	NE	--	---	--	10	6	14	6.1	--

See footnotes at end of table.

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days Max. 90° F. or above	Temperature: No. of days Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days .01 inch or more	Precipitation: No. of days With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile Speed	Wind: Fastest mile Direction	Wind: Fastest mile Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
Florence	146	1010.8	1016.7	82	63	72.6	----	93	†2	41	25	8	0	64	81	2.42	-----	1.10	8	5	0	0	7.7	NNE	--	---	--	5	10	15	6.9	--
Greenville	1006	980.0	1016.8	79	61	70.2	-0.4	93	3	46	26	1	0	60	75	3.67	-0.01	2.37	8	3	0	0	8.6	NNE	47	NE	7	2	15	13	7.2	57
Spartanburg	801	987.8	1017.6	80	61	70.4	-1.7	93	3	44	26	3	0	61	76	3.06	-.40	1.53	7	3	0	0	8.2	NE	48	NE	7	6	14	10	6.6	--
SOUTH DAKOTA																																
Huron	1282	969.9	1016.7	74	48	61.1	-.2	95	2	32	13	2	1	48	72	3.56	+1.99	2.60	9	2	0	0	10.9	S	57	NE	20	13	7	10	4.8	66
Rapid City	3215	903.5	1016.7	71	47	59.0	-1.2	92	2	34	30	4	0	44	66	2.79	+1.59	1.73	10	3	T	T	15.4	SSE	50	NW	27	15	4	11	4.8	62
Sioux Falls	1420	966.5	1017.6	76	49	62.1	-.2	92	1	37	13	1	0	49	72	3.75	+1.11	3.41	6	4	0	0	8.9	S	*27	NNE	21	12	9	9	5.9	0
TENNESSEE																																
Bristol	1519	964.1	1018.1	77	56	66.3	-5.0	90	2	38	25	1	0	58	79	3.20	+.48	1.10	11	4	0	0	6.4	NE	--	---	--	3	12	15	7.2	--
Chattanooga	670	989.5	1016.4	79	61	70.4	+2.2	93	3	48	26	2	0	63	82	9.18	+6.07	3.66	8	2	0	0	4.0	NE	28	NE	7	3	9	18	7.3	51
Knoxville	949	982.4	1017.1	79	60	69.4	0	91	3	44	25	1	0	61	79	1.75	-.93	.70	9	2	0	0	7.1	NE	33	SE	2	2	14	14	7.1	46
Memphis	263	1001.4	1015.4	79	63	71.3	-.6	91	3	45	25	2	0	64	81	3.26	+.46	1.34	13	2	0	0	7.9	NNE	21	N	7	4	7	19	7.5	57
Nashville	577	997.0	1016.5	79	60	69.5	-2.3	89	2	43	25	0	0	62	81	3.59	+.17	2.11	12	3	0	0	5.5	SE	32	NE	5	7	9	14	6.6	53
TEXAS																																
Abilene	1752	953.6	1013.2	86	64	74.7	+.9	95	15	56	7	9	0	62	73	2.81	+.11	1.02	11	9	T	T	11.1	S	43	NW	14	8	10	12	5.8	54
Amarillo	3590	890.3	1013.8	78	56	67.0	-.8	88	27	49	11	0	0	57	78	5.02	+2.72	1.74	10	6	0	0	10.2	S	31	S	30	--	--	--	6.0	54
Austin	515	992.2	1013.2	89	68	78.5	+.2	99	10	61	8	15	0	66	74	4.77	+1.37	2.72	8	6	0	0	7.7	NE	40	NW	16	--	--	--	5.1	51
Big Spring	2533	926.5	1013.7	85	63	74.0	-1.7	96	13	56	25	9	0	60	70	2.50	+.35	.84	10	10	0	0	11.2	NE	--	---	--	10	10	10	5.5	--
Brownsville	16	1009.5	1011.5	93	75	83.8	+3.2	98	10	70	38	25	0	72	78	2.82	-3.00	1.28	8	4	0	0	8.6	SE	29	SE	16	--	--	--	3.9	68
Corpus Christi	40	1012.2	1012.8	92	74	83.0	+4.4	97	10	67	1	21	0	72	79	4.22	-.27	2.42	7	3	0	0	10.9	SE	29	SE	15	13	13	4	4.2	74
Dallas	487	997.0	1014.2	84	66	75.4	-2.0	95	15	56	8	5	0	65	78	2.73	+.01	1.10	8	5	0	0	7.0	NE	36	SE	16	--	--	--	5.9	49
Del Rio CO	957	978.7	1011.2	91	71	81.0	+1.8	102	10	65	24	19	0	66	66	3.50	+.53	2.05	8	6	0	0	7.7	---	31	W	10	12	11	7	4.7	65
El Paso	3920	885.9	1010.3	87	62	74.4	+2.1	94	14	53	25	8	0	49	47	1.32	+.07	.65	7	6	T	T	9.0	S	42	N	24	--	--	--	3.9	74
Fort Worth	688	990.5	1014.4	85	66	75.2	-.7	95	15	57	6	5	0	64	77	3.21	+.72	1.60	8	6	0	0	14.5	ESE	54	NW	11	--	--	--	5.7	--
Galveston CO	7	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	-	-	----	----	25	NE	3	---	---	---	----	66
Galveston	7	1013.2	1013.7	87	74	80.9	+.8	92	22	67	26	6	0	71	79	3.12	-2.45	1.23	5	3	0	0	9.5	SE	--	---	--	11	14	5	4.5	--
Houston CO	41	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	-	-	----	----	31	E	14	---	---	---	----	51
Houston	41	1010.8	1013.1	89	70	79.3	+1.4	97	14	62	8	14	0	69	79	1.50	-2.45	.90	8	4	0	0	9.2	SSE	--	---	--	6	16	8	5.7	--
Laredo	500	997.0	1011.3	96	75	85.5	+3.3	104	10	67	26	27	0	67	63	.85	-2.43	.50	6	2	0	0	12.0	SE	--	---	--	--	--	--	4.4	--
Lubbock	3238	903.8	1013.4	79	58	68.7	-2.6	90	15	50	2	1	0	59	78	3.74	+.34	1.99	10	7	T	T	11.0	E	36	N	11	7	8	15	6.0	--
Palestine CO	491	996.6	1014.2	85	67	75.6	-1.4	94	15	60	6	7	0	--	--	2.88	-.03	.97	8	2	0	0	6.4	---	26	SE	17	5	18	7	6.0	70
Port Arthur CO	5	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	-	-	----	----	37	E	4	---	---	---	----	66
Port Arthur	5	1012.5	1013.2	88	68	77.6	----	95	12	59	8	11	0	70	91	2.39	-----	1.06	9	6	0	0	7.7	NE	--	---	--	8	13	9	5.5	--
San Angelo	1903	947.5	1013.1	86	65	75.6	-.2	97	15	58	23	9	0	62	70	4.30	+1.37	1.40	9	7	0	0	7.0	S	*21	SSE	10	9	9	12	6.3	--
San Antonio	782	989.2	1013.1	89	70	79.5	+.5	98	10	62	27	14	0	65	69	3.02	-.03	1.94	7	3	0	0	7.7	NE	34	NE	10	--	--	--	5.3	62
Victoria	109	1008.8	1012.9	92	71	81.5	+.8	98	12	65	27	24	0	69	77	3.86	+.25	2.34	7	7	0	0	9.3	SE	--	---	--	9	16	5	5.0	--
Waco	504	995.3	1013.0	87	67	77.0	-2.0	97	16	59	6	11	0	65	74	4.92	+2.06	1.53	9	9	0	0	6.1	S	---	---	--	7	15	8	5.7	--
Wichita Falls	1027	978.3	1014.1	84	63	73.5	-4.6	94	15	53	17	3	0	63	77	4.13	+1.31	2.23	10	11	0	0	9.9	SE	40	N	†11	--	--	--	5.3	--
UTAH																																
Milford	5029	846.3	1013.6	80	43	61.8	+.7	98	1	31	20	5	2	36	42	.01	-.39	.01	1	4	0	0	8.3	S	--	---	--	13	13	4	4.5	--
Salt Lake City	4222	870.6	1012.8	76	51	63.4	+.7	98	4	33	29	6	0	40	48	1.73	+.75	.71	9	6	T	T	6.5	SE	32	NW	29	9	10	11	5.5	70
VERMONT																																
Burlington	398	1002.7	1017.1	65	45	55.1	-5.2	80	7	31	25	0	1	50	81	2.45	-1.03	.71	12	0	T	T	8.3	SSW	27	S	22	5	6	19	7.2	52
VIRGINIA																																
Cape Henry CO	16	1016.3	1016.7	76	67	71.5	-.3	93	1	51	26	2	0	--	--	3.99	+1.13	1.84	9	4	0	0	----	---	34	N	24	2	13	15	7.5	62
Lynchburg	947	984.8	1018.4	75	58	66.3	-1.6	91	3	40	26	1	0	59	81	6.27	+2.96	2.01	13	7	0	0	8.3	NNE	33	W	22	4	8	18	7.6	49
Norfolk CO	11	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	-	-	----	----	29	NE	6	---	---	---	----	52
Norfolk	25	1016.6	1017.7	77	64	70.8	+1.3	92	3	46	25	3	0	63	79	2.48	-.75	.91	9	5	0	0	10.8	NE	--	---	--	1	9	20	8.1	--
Richmond	160	1012.2	1018.0	77	59	68.2	-.8	93	3	41	25	3	0	61	84	4.04	-----	1.43	9	5	0	0	7.3	N	29	NW	14	3	8	22	8.3	29
Roanoke	1192	1010.5	1018.6	75	57	65.8	-2.6	90	3	38	26	1	0	57	79	6.10	+2.90	3.09	13	6	0	0	7.6	NE	--	---	--	2	10	18	7.6	--
Urbanna	31	1016.6	------	77	61	68.8	----	92	2	41	25	3	0	--	--	2.40	-----	1.02	9	4	0	0	----	---	--	---	--	0	10	20	8.3	--
Wash.Nat'l AP	14	1014.6	1019.0	74	60	66.9	-1.2	90	2	44	25	1	0	59	78	6.73	+3.49	2.79	13	3	0	0	9.6	NE	37	NE	10	2	5	23	8.0	35
WASHINGTON																																
Ellensburg	1727	953.9	1015.7	78	44	60.9	+2.9	97	2	32	30	2	1	43	53	.16	-.35	.11	3	1	0	0	9.5	NW	--	---	--	21	7	2	2.5	--
Kelso	17	------	------	74	46	60.1	----	90	21	32	30	1	1	--	--	1.44	-----	.84	4	0	0	0	----	---	--	---	--	12	8	10	5.1	--
North Head CO	194	1009.8	1017.3	60	51	55.7	-.8	89	21	45	29	0	0	--	--	2.65	-.34	1.28	9	0	T	T	11.1	---	36	NW	6	6	11	13	6.4	43
Olympia	190	1010.2	1017.7	72	44	57.8	----	90	1	29	30	1	2	49	79	2.19	-----	1.33	4	0	0	0	3.3	S	--	---	--	13	12	5	4.6	--
Port Angeles	8	1016.9	1018.1	61	48	54.5	----	73	7	42	28	0	0	49	85	.14	-----	.10	5	0	0	0	8.7	W	--	---	--	11	11	8	4.6	--
Seattle	14	1016.2	1017.4	--	--	----	----	--	--	--	--	--	--	51	75	----	-----	----	--	--	-	-	----	NNW	--	---	--	---	---	---	----	--
Seattle CO	14	------	------	70	52	61.0	+.7	82	1	42	30	0	0	--	--	1.43	-.34	.84	6	0	0	0	6.9	---	26	S	25	14	8	8	4.4	63
Spokane	2357	947.2	1015.8	76	48	62.0	+2.8	96	2	30	30	3	3	36	41	.06	-.84	.04	2	0	0	0	7.8	ENE	30	SW	26	21	7	2	2.6	81
Stampede Pass CO	3960	881.1	1018.9	63	45	53.7	---	82	2	30	28	0	5	--	--	3.48	-----	1.80	9	1	T	T	10.5	---	29	W	†25	18	8	4	3.0	--
Stevenson CO	319	------	------	73	53	62.6	----	87	1	42	29	0	0	--	--	2.86	-----	1.55	5	2	T	0	----	---	--	---	--	14	10	6	3.7	--
Tacoma CO	127	1010.2	1016.9	68	51	59.4	+2.1	82	21	40	30	0	0	--	--	1.42	-.67	.81	4	0	0	0	6.0	---	25	SW	26	12	11	7	4.5	64
Tatoosh CO	101	1014.9	1018.1	58	49	53.7	+.7	67	21	45	11	0	0	50	89	2.58	-2.10	1.58	8	0	0	0	9.5	S	37	E	21	9	5	16	6.4	47
Walla Walla	1200	------	------	--	--	----	----	--	--	--	--	--	--	41	--	----	-----	----	--	--	-	-	----	E	--	---	--	---	---	---	----	--
Walla Walla CO	949	979.0	1014.6	80	54	67.1	+3.3	103	2	37	29	3	0	--	--	.10	-.35	.10	2	1	0	0	4.4	---	21	SW	26	17	8	5	3.5	81
Yakima	1058	976.0	1014.8	81	43	61.8	0	97	2	31	27	5	2	40	50	.18	-.37	.16	2	0	0	0	5.6	W	--	---	--	21	4	5	2.6	--
Seattle-Tacoma AP	379	1003.1	1017.5	68	47	57.8	----	86	21	36	30	0	0	50	79	2.30	-----	.99	8	1	0	0	7.5	NE	--	---	--	14	9	7	4.6	--
WEST VIRGINIA																																
Elkins	1969	950.2	1019.2	72	50	60.8	-1.1	84	1	30	26	0	3	58	84	3.67	+.52	1.50	13	6	0	0	3.7	S	21	N	23	1	7	22	8.3	35
Huntington	565	------	------	79	57	67.9	+1.9	87	10	39	25	0	0	--	--	8.90	+6.30	1.86	11	--	0	0	---	---	--	---	--	---	---	---	---	--
Parkersburg	837	------	1018.4	--	--	----	----	--	--	--	--	--	--	58	--	----	-----	----	--	--	-	-	5.6	SW	--	---	--	---	---	---	----	--
Parkersburg CO	615	------	------	75	56	65.3	-2.0	86	10	36	25	0	0	--	--	5.50	+2.74	2.65	10	7	0	0	---	---	17	NW	11	6	4	20	7.5	39
Petersburg	1013	982.1	------	73	54	63.4	----	87	3	35	24	0	0	--	--	6.47	-----	1.94	10	5	0	0	---	---	--	---	--	3	5	22	8.4	--
WISCONSIN																																
Green Bay	689	992.9	1019.0	68	48	57.9	-2.5	79	30	29	24	0	2	50	80	2.20	-1.32	1.33	7	2	0	0	8.2	NE	37	SW	18	10	7	13	5.9	56
La Crosse	669	993.6	1018.2	71	50	60.7	-.7	84	18	29	24	0	1	53	81	1.78	-2.21	.96	6	4	0	0	6.8	SSE	27	S	27	--	--	--	6.3	63
Madison	857	987.1	1018.9	72	50	60.9	-.5	80	18	30	24	0	1	52	81	2.09	-1.63	1.35	5	3	0	0	9.4	NE	36	NE	21	--	--	--	5.9	61
Milwaukee	674	993.2	1018.6	68	53	60.5	-.5	81	18	37	24	0	0	54	84	1.75	-1.54	1.16	6	2	0	0	10.5	NNE	45	NE	21	8	16	6	6.2	42
WYOMING																																
Casper	5346	837.8	1014.6	69	44	56.2	-3.0	93	3	30	30	5	3	38	57	3.11	+1.96	1.80	10	4	.8	1	9.1	SW	--	---	--	12	7	11	5.2	--
Cheyenne	6139	813.8	1015.8	66	44	54.9	-2.1	85	1	34	11	0	0	42	69	2.67	+1.47	.76	14	8	T	0	11.2	SE	27	NW	20	12	4	14	5.6	63
Lander	5563	837.1	1016.6	67	43	54.9	-.8	93	4	29	30	5	5	37	60	4.62	+3.70	1.97	12	5	T	T	6.5	---	33	SE	6	11	8	11	5.2	59
Rock Springs	6741	795.8	1015.8	67	42	54.4	-2.3	89	3	30	28	0	2	34	56	2.29	+1.69	1.05	9	8	T	0	11.6	W	*43	SW	12	7	11	12	6.1	--
Sheridan	4021	885.9	1016.7	70	43	56.6	+.3	99	3	30	13	4	5	40	60	1.58	+.31	.72	11	1	.6	1	7.3	NW	34	NW	26	13	7	10	5.2	65
PACIFIC AREA																																
Canton Island	12	1010.5	1011.0	88	77	82.4	----	93	22	74	21	6	0	72	76	.05	-----	.05	2	0	0	0	----	---	--	---	--	13	17	0	3.9	--
Hilo	26	1013.9	1015.8	83	67	75.2	----	86	26	64	20	0	0	67	78	6.01	-----	1.03	24	0	0	0	5.1	SW	--	---	--	0	18	12	7.0	--
Honolulu CO	12	------	------	--	--	78.0	-.2	--	--	--	--	--	--	--	--	.83	-.45	----	--	--	-	-	----	---	22	NE	†13	---	---	---	----	82
Honolulu	7	1015.6	1016.1	85	72	78.7	----	87	29	67	23	0	0	67	68	.49	-----	.17	11	0	0	0	9.9	ENE	--	---	--	15	14	1	3.7	--
Lihue	115	1011.2	1016.3	84	72	77.9	----	85	10	66	23	0	0	69	76	.84	-----	.22	15	1	0	0	9.7	NE	--	---	--	5	24	1	5.2	67

See footnotes at end of table.

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In.	In.	In.			In.	In.	M p h		M p h			0–3	4–7	8–10	0–10	%
Lake Island	11	1013.9	1014.2	86	77	81.1	----	87	1	73	10	0	0	75	83	6.34	-----	2.14	24	1	0	0	11.3	E	-	---	--	6	11	13	6.4	--
Midway Island	10	------	------	84	75	79.3	----	85	26	71	16	0	0	--	--	.72	-----	.18	10	1	0	0	----	---	--	---	--	19	9	2	3.8	--
PUERTO RICO																																
San Juan	9	1011.5	1018.3	87	74	80.6	----	91	12	71	19	4	0	75	84	6.74	-----	1.63	14	10	0	0	7.4	SE	37	S	19	4	15	11	6.6	45
ALASKA												‡																				
Anchorage	134	1002.7	1007.8	57	41	48.8	+1.0	66	8	30	24	0	1	40	74	1.07	-1.51	.46	12	1	T	T	----	S	49	SE	10	1	7	22	8.5	23
Annette Island	110	1011.8	1015.9	60	49	54.3	----	71	10	40	29	0	0	49	83	10.28	-----	2.45	--	0	T	T	10.1	NW	--	---	--	5	8	17	7.5	--
Barrow	29	1010.5	1011.2	35	29	32.2	----	51	9	21	25	0	23	30	91	1.16	+.64	----	--	0	5.0	3	----	ENE	31	E	17	0	1	29	9.6	--
Bethel	21	1002.0	1002.4	53	40	46.3	----	63	4	30	25	0	2	42	87	3.45	-----	.96	--	0	T	T	----	NE	* 30	SSW	9	1	3	26	8.7	--
Cordova	44	1008.5	1010.2	55	40	47.9	----	70	1	30	14	0	4	44	88	17.09	-.91	3.70	22	0	0	0	4.6	E	--	---	--	1	2	27	9.3	--
Fairbanks	442	989.8	1006.8	59	35	46.8	+3.1	72	8	26	16	0	8	38	74	.31	-.95	.16	9	0	T	T	5.3	E	49	SW	9	2	8	20	7.8	23
Galena	123	1000.0	1004.7	53	38	45.5	----	63	2	29	20	0	3	38	77	1.87	+.64	----	11	0	T	T	----	N	-	---	--	5	1	24	7.5	--
Kenai	25	1002.7	1003.7	43	38	40.5	----	49	1	33	25	0	0	37	90	3.23	+1.26	1.05	18	0	T	T	----	NNE	67	NE	8	0	1	29	9.4	--
Juneau	24	1013.2	1014.1	56	43	49.8	+1.2	63	13	30	30	0	1	43	87	7.34	+.76	1.74	18	0	0	0	----	N	36	SE	28	5	1	24	8.3	22
Kotzebue	20	1005.1	1005.4	48	38	43.0	+2.6	56	3	28	24	0	2	39	85	2.17	+1.26	.49	14	0	T	T	14.4	ESE	--	---	--	2	4	24	8.4	--
McGrath	341	992.9	1005.4	55	37	46.2	+2.1	66	8	29	15	0	4	40	82	2.13	-.27	.53	15	2	0	0	----	NW	* 50	SSE	9	2	2	26	8.6	--
Nome	13	1003.1	1003.7	51	38	44.4	+2.7	62	2	25	12	0	5	39	82	3.63	+.92	1.20	14	0	T	T	----	N	52	SE	8	2	7	21	7.9	20
Northway	1721	946.2	1009.1	56	34	45.5	+3.1	69	9	26	25	0	14	37	77	54	-.90	.30	6	0	0	0	----	SE	--	---	--	0	7	23	8.6	--
St. Paul Island	28	999.0	1000.0	48	41	----	----	52	3	29	19	0	2	42	92	3.72	+.23	----	26	0	T	T	----	---	--	---	--	0	0	30	9.6	--
Umiat	337	999.0	------	42	28	35.3	+3.7	63	9	14	26	0	22	--	--	.64	-----	.25	11	0	.2	T	6.3	---	--	---	--	0	5	25	9.1	--
Wales	9	------	------	46	38	41.8	+1.3	52	14	31	24	0	2	--	--	2.69	+.81	.82	15	0	T	T	----	---	--	---	--	0	5	25	9.1	--
Yakutat	31	1012.9	1013.9	54	42	47.8	-.9	59	15	30	29	0	2	46	92	14.31	-1.57	----	22	0	0	0	----	---	* 56	SE	21	0	4	26	9.2	--

Data from airport unless otherwise specified. CO indicates data from city office.

* Data entered in column headed "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

† Other date also.

‡ Number of days Max. 70° F. or above for Alaskan Stations.

HEATING DEGREE DAYS

(BASE 65°)

Table 3

SEPTEMBER 1950

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Birmingham	1	1	11
Mobile (CO)	0	0	1
Mobile	0	0	
Montgomery (CO)	0	0	4
Montgomery	1	1	
ARIZONA			
Flagstaff (CO)	304	442	357
Payson (CO)	27	28	
Phoenix (CO)	0	0	0
Phoenix	0	0	
Prescott (CO)	51	51	
Tucson (CO)	0	0	
Winslow	28	28	
Yuma	0	0	0
ARKANSAS			
Ft. Smith	5	5	12
Little Rock	14	14	11
Texarkana (CO)	7	7	
CALIFORNIA			
Bakersfield	4	4	
Beaumont (CO)	25	25	
Bishop	46	46	
Blue Canyon	186	224	
Burbank	7	7	
Eureka (CO)	279	799	824
Fresno	10	10	3
Los Angeles (CO)	0	0	6
Los Angeles	8	16	
Mt. Shasta (CO)	163	203	
Oakland	59	137	
Red Bluff	8	8	12
Sacramento (CO)	8	10	18
Sacramento	9	11	
Sandberg (CO)	122	124	
San Diego	0	0	15
San Francisco (CO)	122	508	496
San Francisco	74	273	
San Jose (CO)	27	38	
Santa Catalina (CO)	86	149	
Santa Maria	76	215	
COLORADO			
Alamosa	317	561	
Colorado Springs	194	265	
Denver	169	190	112
Grand Junction	69	69	
Pueblo	87	91	98
CONNECTICUT			
Bridgeport	134	134	
Hartford	182	188	124
New Haven	148	150	102
DELAWARE			
Wilmington	114	116	
DIST. OF COLUMBIA			
Washington (CO)	57	57	44
Washington	55	55	
FLORIDA			
Apalachicola (CO)	0	0	1
Daytona Beach	0	0	
Fort Myers (CO)	0	0	
Jacksonville (CO)	0	0	0
Jacksonville	0	0	
Key West (CO)	0	0	0
Key West	0	0	
Melbourne	0	0	
Miami (CO)	0	0	0
Int. Airport, Hialeah	0	0	
Orlando	0	0	
Pensacola (CO)	0	0	0
Tallahassee	0	0	
Tampa	0	0	0
West Palm Beach	0	0	
GEORGIA			
Albany (CO)	1	1	3
Atlanta (CO)	21	21	12
Atlanta	14	14	
Athens	31	31	
Augusta	15	15	4
Columbus (CO)	3	3	
Macon	5	5	5
Rome (CO)	9	9	
Savannah	1	1	1
Valdosta	0	0	
IDAHO			
Boise	142	161	162
Lewiston	115	137	
Pocatello	240	272	209
ILLINOIS			
Cairo (CO)	21	21	26
Chicago (CO)	41	53	101
Chicago	65	83	
Chicago University	66	81	
Joliet	98	110	
Moline	82	110	
Peoria	62	82	100
Springfield (CO)	41	46	68
Springfield	71	91	
INDIANA			
Evansville	43	48	36
Ft. Wayne	111	139	125
Indianapolis (CO)	61	65	71
Indianapolis	78	92	
South Bend	103	136	
Terre Haute	64	78	
IOWA			
Burlington	79	109	
Charles City (CO)	125	179	196
Davenport (CO)	55	70	99
Des Moines (CO)	54	78	109
Des Moines	65	99	
Dubuque (CO)	75	103	138
Keokuk (CO)	47	57	75
Sioux City	96	132	142
KANSAS			
Concordia (CO)	50	65	72
Dodge City	53	69	63
Goodland	125	153	
Topeka (CO)	32	38	58
Topeka	50	62	
Wichita	28	38	42
KENTUCKY			
Lexington	62	68	52
Louisville (CO)	38	38	36
Louisville	40	41	
Pikeville(CO)	27	27	
LOUISIANA			
Baton Rouge	0	0	2
Lake Charles	0	0	
New Orleans (CO)	0	0	0
New Orleans	0	0	
Int. Airport, Moisant	0	0	
Shreveport	2	2	4
MAINE			
Caribou	439	645	
Eastport (CO)	334	593	575
Greenville (CO)	442	643	497
Portland	312	383	258
MARYLAND			
Baltimore (CO)	61	61	24
Baltimore	85	86	
Frederick (CO)	85	85	
MASSACHUSETTS			
Boston	149	153	120
Milton	234	269	
Nantucket	174	198	117
Pittsfield (CO)	313	417	
MICHIGAN			
Alpena (CO)	268	436	367
Detroit	106	131	133
Escanaba (CO)	257	528	394
Grand Rapids (CO)	110	145	156
Grand Rapids	155	226	
Lansing	154	224	
Marquette (CO)	249	597	443
Muskegon	163	269	
Sault Ste. Marie	328	691	486
Traverse City	211	392	
Ypsilanti	111	139	
MINNESOTA			
Duluth (CO)	254	603	469
Duluth	298	659	
Intern'l Falls (CO)	305	630	
Minneapolis	100	154	198
Rochester (CO)	138	222	
St. Cloud (CO)	170	291	323
St. Paul	101	159	
MISSISSIPPI			
Jackson	0	0	5
Meridian	2	2	6
Vicksburg (CO)	1	1	3
MISSOURI			
Columbia (CO)	43	54	65
Columbia	61	72	
Kansas City	34	39	53
St. Joseph	53	66	
St. Louis (CO)	25	28	39
St. Louis	37	41	
Springfield	61	70	51
MONTANA			
Billings	286	338	268
Butte	503	885	
Glasgow (CO)	158	255	
Great Falls	310	423	
Havre	282	353	356
Helena	360	469	400
Kalispell (CO)	315	439	500
Missoula	304	397	368
NEBRASKA			
Grand Island	94	117	
Lincoln (CO)	64	85	91
Lincoln	92	115	
Norfolk	99	128	
North Platte	133	165	144
Omaha	77	97	89
Valentine (CO)	182	251	194
NEVADA			
Elko	296	328	
Ely	319	408	
Las Vegas (CO)	0	0	1
Reno	201	224	166
Tonopah	250	300	117
Winnemucca	227	247	221
NEW HAMPSHIRE			
Concord (CO)	287	326	256
Mt. Washington Obs.(CO)	777	1813	
NEW JERSEY			
Atlantic City (CO)	77	77	42
Newark	100	100	72
Trenton (CO)	118	119	70
NEW MEXICO			
Albuquerque	27	27	27
Clayton	81	99	
Roswell	1	1	26
Raton (CO)	143	185	
NEW YORK			
Albany	215	239	136
Bear Mountain (CO)	220	251	
Binghamton (CO)	199	233	200
Binghamton	222	286	
Buffalo	155	188	165
Canton (CO)	286	346	307
New York (CO)	87	87	55
La Guardia Field	87	87	
Oswego (CO)	198	228	
Rochester	169	198	168
Schenectady (CO)	212	231	
Syracuse	202	225	191
NORTH CAROLINA			
Asheville (CO)	54	54	54
Asheville	72	73	
Charlotte (CO)	38	38	18
Charlotte	40	40	
Greensboro	62	62	
Hatteras (CO)	8	8	1
Raleigh (CO)	46	46	18
Raleigh	55	55	
Wilmington (CO)	22	22	5
Winston-Salem	63	63	
NORTH DAKOTA			
Bismarck	232	327	309
Devils Lake (CO)	251	425	413
Fargo	166	274	
Grand Forks	216	327	366
Pembina	267	472	
Williston (CO)	274	421	374
OHIO			
Akron	137	177	
Cincinnati (CO)	46	46	57
Cincinnati	82	97	
Cleveland (CO)	90	101	114
Cleveland	77	97	
Columbus (CO)	68	71	76
Columbus	100	117	
Dayton	94	109	79
Sandusky (CO)	62	71	93
Toledo	105	131	118
Youngstown	148	190	
OKLAHOMA			
Oklahoma City (CO)	3	7	22
Oklahoma City	3	6	
Tulsa	1	6	
OREGON			
Baker (CO)	236	326	383
Baker	309	407	
Burns (CO)	208	276	
Eugene	117	146	
Meacham (CO)	263	444	
Medford	79	89	116
Pendleton	94	108	
Portland (CO)	90	114	161
Portland	121	158	
Roseburg (CO)	80	93	165
Salem	126	157	
Sexton Summit (CO)	204	358	
Troutdale (CO)	131	176	
PENNSYLVANIA			
Allentown	142	152	
Curwensville (CO)	276	395	
Erie (CO)	101	119	126
Harrisburg	117	124	74
Park Place (CO)	234	300	
Philadelphia (CO)	85	85	38
Philadelphia	93	94	
Pittsburgh (CO)	78	82	77
Pittsburgh	101	110	108
Reading (CO)	103	107	75
Scranton (CO)	169	185	145
Williamsport	163	178	111
RHODE ISLAND			
Block Island (CO)	125	128	100
Providence (CO)	163	166	123
Providence	182	190	
SOUTH CAROLINA			
Charleston (CO)	2	2	1
Charleston	8	8	
Columbia (CO)	21	21	6
Columbia	22	22	
Florence (CO)	33	33	
Greenville	31	31	14
Spartanburg (CO)	26	26	
SOUTH DAKOTA			
Huron	146	201	189
Pierre	136	174	151
Rapid City	233	309	235
Sioux Falls	113	130	
TENNESSEE			
Bristol	60	61	
Chattanooga (CO)	3	3	
Chattanooga	11	11	13
Knoxville	27	27	20
Memphis	10	10	14
Nashville	19	19	20
TEXAS			
Abilene	0	0	10
Amarillo	23	30	45
Austin	0	0	2
Big Spring	0	0	
Brownsville	0	0	0
Corpus Christi	0	0	0
Dallas	0	0	0
Del Rio (CO)	0	0	2
El Paso	0	0	6
Ft. Worth	0	0	5
Galveston (CO)	0	0	0
Galveston	0	0	
Houston (CO)	0	0	
Houston	0	0	1
Laredo (CO)	0	0	
Lubbock (CO)	4	4	
Palestine (CO)	0	0	4
Port Arthur (CO)	0	0	1
Port Arthur	0	0	
San Angelo	0	0	
San Antonio	0	0	1
Victoria (CO)	0	0	
Wichita Falls	0	0	
Waco	0	0	
UTAH			
Milford (CO)	147	147	
Salt Lake City (CO)	113	116	54
Salt Lake City	135	138	88
VERMONT			
Burlington	294	340	283
VIRGINIA			
Cape Henry (CO)	20	20	7
Lynchburg	75	75	40
Norfolk (CO)	26	26	9
Norfolk	35	35	
Richmond (CO)	54	54	28
Richmond	60	60	
Roanoke	91	91	
Urbanna (CO)	54	54	
WASHINGTON			
Ellensburg	150	176	
Kelso (CO)	160	301	
North Head (CO)	284	732	735
Olympia	219	362	
Port Angeles (CO)	310	805	
Seattle (CO)	128	178	306
Seattle	219	333	
Spokane	144	191	241
Stampede Pass (CO)	343	845	
Stevenson (CO)	104	160	
Tacoma (CO)	171	271	
Tatoosh Island (CO)	330	945	921
Walla Walla (CO)	76	77	105
Yakima	131	145	149
WEST VIRGINIA			
Elkins	165	211	153
Huntington	39	41	
Parkersburg (CO)	73	75	60
Petersburg (CO)	110	120	
WISCONSIN			
Green Bay (CO)	212	402	234
La Crosse (CO)	92	145	186
La Crosse	138	234	
Madison (CO)	116	186	173
Madison	130	199	
Milwaukee (CO)	113	184	154
Milwaukee	136	223	
WYOMING			
Casper	303	376	
Cheyenne	300	458	337
Lander	355	417	335
Rock Springs (CO)	286	337	
Rock Springs	348	435	
Sheridan	306	374	
ALASKA			
Anchorage	480	942	
Annette Island	313	823	
Barrow (CO)	977	2551	
Bethel	555	1098	
Cordova	533	1265	
Fairbanks	539	862	
Galena	584	865	
Gambell (CO)	727	1922	
Juneau	446	1042	
Kotzebue	652	1153	
McGrath	557	927	
Nome	613	1402	
Northway	589	1053	
St. Paul	613	1727	
Yakutat	512	1209	
Umiat (CO)	891	1600	
Wales (CO)	689	1692	

Data from airport unless otherwise specified. CO indicates data from city office.

Table 4 SEPTEMBER 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Tennessee, northwestern portion (from Madison to Stewart Counties).	1-4		†50	100				$1,000	Rain	Heavy rain as a result of tropical storm caused damage to crops by flooding small streams and lowlands.
Phoenix, Ariz.	2	8:30 p.m.	†5			2	$500		Electrical and winds	Heavy winds and lightning responsible for power disruption and falling trees in several localities of city. Two persons injured by flying glass when display panel fell out during height of windstorm. Damage by wind estimated at $400; by lightning, $100.
Los Angeles and vicinity, Calif.	3	10:25 a.m.-2:20 p.m.			2		50,000		Electrical	Freak thunderstorm swept westward over coastal plain, resulting in two persons killed in Los Angeles area. Scores of forest and brush fires started. In Long Beach a large market partially destroyed by flames started by lightning. Communication and power services disrupted temporarily in many scattered areas.
Dixie, Levy, Alachua, Marion, Citrus, Lake, Hernando, Pasco, Penellas, Hillsborough, Manatee, and Polk Counties, Fla.	5	6 a.m.-6 p.m.	†60	150	2	27	3,100,000	200,000	Hurricane	Storm center passed between Key West and Dry Tortugas between 10 and 11 a.m. of 3d, and moved north-northwestward, parallel to west Florida Coast 30 to 50 miles offshore, about 10 or 12 m.p.h. to a point about 70 miles northwest of Tampa at 8 p.m., of 4th. Here it began to show increased intensity and aircraft estimated highest winds about 125 m.p.h. During night of 4th and 5th, storm made a sharp turn to the northeast and reached the coast a little south of Cedar Keys about 8 a.m. of 5th. Here it made a small loop that brought the lull over Cedar Keys at 11 a.m. from the east. Center lingered over Cedar Keys until 1:30 p.m. when the southward bend of the loop carried the center away to south. Observer at Cedar Keys reports the unique experience of getting the same side of the hurricane twice with 2 1/2 hours of calm intervening. Strongest winds were 125 m.p.h. in gusts, and hurricane force or higher prevailed from about 6 a.m. to 6 p.m. on 5th, except for calm period. Lowest pressure was 28.30 inches (958.3 mbs). The whole coastal area from Sarasota to Cedar Keys suffered extensively from wind and high water. Beach erosion severe, especially in St. Petersburg-Clearwater area. Tide in Tampa Bay rose 6 1/2 feet, the highest since 1921.
Florence, Ariz.	5	Evening	†10	10			1,000	15,000	Thunderstorm and wind	High winds preceded thundershower which lasted about 45 minutes. Extensive damage to homes, garages, and trees in Florence. Major damage to cotton crops in vicinity of Florence, as storm struck when cotton picking just getting under full swing. Many bolls stripped from plants. Damage by wind, $12,000; by rain, $4,000.
Casa Grande (near), Ariz.	7	Evening			1				Electrical	Man killed by lightning on farm about 25 miles west of Casa Grande when he took shelter alongside lumber pile.
Cabin Canyon (near Mesqeite), Nev.	7						10,000		Rain	Intense local cloudburst completely washed out 2 miles of pipeline supplying town of Mesquite with water. Canyon road for about 4 miles severely damaged.
Anderson Dam, Idaho	8	6-8 p.m.							do	Rainfall of 1.60 inches in 2 hours caused several landslides which damaged house and construction work at Dam. House filled with mud to average depth of 2 feet.
Rochester Canyon (near Lovelock), Nev.	8						3,000		do	Damage to Highway No. 40 estimated between $500 and $600. Some damage to two service stations. Sections of county roads and 6 cabins washed away or damaged in nearby canyons.
Alamo, Nev.	8						Slight	See remarks	Hail and rain	Hail caused quite a bit of damage to some alfalfa fields. Some basements flooded.
Clayton and vicinity, N. Mex.	10	2-4 p.m.					50,000	30,000	Hail	Hailstones reported up to 2 1/2 inches in diameter. Roofs, windows, and neon signs severely damaged in Clayton and row crops south of city.
Mt. Carbon and Deepwater, W. Va.	10	5:30-10 p.m.					25,000	Little	Rain	Rain during thunderstorm caused much damage to homes, highways, and railroads, and some damage to automobiles. A very small creek turned into raging torrent, bringing heavy landslides down mountain and blocking State Route 61 with slides 90 to 100 feet long in three places. About 30 automobiles trapped in slides. Red Cross survey showed between 50 and 75 houses damaged.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Maryland, entire State	10	P.m.			3				Flooding	State police reported that stretches of highways flooded in almost every county. Washington Boulevard near Bladensburg, Md. covered with over a foot of water, making it necessary for thousands of motorists to detour. In some instances water on roads was as high as 6 feet in low places. A driver lost control of his car and went over side of a bridge as another car splashed water on windshield; three men drowned. At Whitemarsh a small 4-room house was swept from its foundation and into a nearby field. At Whitehall there were 6 feet of water in basement of a house, a general store, and a feed shed. About a dozen people forced to flee.
Rockbridge, Botetourt, Floyd, Bedford, Henry, Franklin, Roanoke, Patrick, Montgomery, Prince George, Surry, Greensville, Spotsylvania and Caroline Counties, Va.	10				2		$750,000	$250,000	Rain	Flash flood caused drowning of two persons in Rockbridge County; and severe erosion of land, damage to crops, and destruction of roads, bridges, culverts, farm houses and contents, business establishments, telephone and power lines, tractors, trailers and cargo, and railroad roadbeds in Rockbridge and portions of Botetourt Counties and to comparatively small areas in other counties named.
Floydada, Floyd County, Tex.	11	1 a.m.	†2						Hail	About 80 percent damage to cotton and 50 to 80 percent to small grain crops.
Tahoka, Lynn County, Tex.	11	A.m.	880	2 1/2				12,500	do	Cotton damaged about 10 miles east of Tahoka.
Pekin, Ill.	11	5-10:30 p.m.					5,000		Rain	Two heavy showers flooded many streets and basements. Telephone service disrupted in parts of city.
Harrisburg, Pa.	11	Afternoon							do	Spotty, local, heavy rains flooded a manhole and knocked out about 3,000 telephones in northern part of Harrisburg.
Massachusetts (eastern portion), and Rhode Island	11-12	Noon to noon			12	1	2,000,000		Hurricane	By morning of 12th, center of storm had reached a poi about 85 miles east-southeast of Nantucket. Still a very severe extra-tropical storm, but had lost some its true hurricane character. Eastern Seaboard aler to prospect of heavy gales and high tides. Shortly before midnight of the 11th winds attained velocity peak gusts of over 75 m.p.h. at Nantucket and off el of Cape Cod, but precautionary measures held damage to a minimum. However, several fishing vessels were caught in worst sector of storm, where winds of hurricane velocity and tremendous seas overwhelmed 105-foot scalloper "Theresa A.", lost with 11 person on board. Another, the "Muriel and Russell" managed to make North Chatham Beach, where Coast Guard aided the 10-man crew to get ashore. At Provincetown, an automobile that was blown off road, overturned, kill driver. In combination with naturally high spring t hurricane swell and gale-driven surf pounded sea-wal and coastal highways, undermining buildings in some places. Pleasure boats and other small craft suffer largest monetary loss in New England's history, alth numerically not quite as great as in 1938 hurricane. At Marblehead, Mass., alone, wide open to a northeas yacht replacement damage set at $1,125,000: at Winth a 50-foot section of sea-wall smashed, damage of $300,000; on Cape Cod damage to traps alone, $150,00 The overall estimate of $2,000,000 is probably too conservative. Along south New England coast, west of Buzzard's Bay, winds less violent and off-shore, so damage confined to wires and trees. Twenty-five communities without light or power all night and 20,000 homes without telephone service.
New Jersey, (southern coastline)	11-12						1,000		do	Passed 200 miles east of New Jersey shoreline. High tides and heavy seas caused considerable beach erosion and some damage to dwellings located near beach. Heavy rains caused mild flood conditions at some coastal towns and cities, but no permanent damage resulted from water.
Woodford County, Ky.	12	11 a.m.			1	2			Electrical	Lightning struck a tobacco barn in which the person killed and two injured were standing.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Newport, Ky.	12	11 a.m.-12:30 p.m.					See remarks		Electrical and rains	Heavy rain caused flash floods. Six families fled their homes: an estimated 100 automobiles damaged by waters which reached a depth of 4 feet in several places. Four homes and a business building struck by lightning. Damage estimated to be several thousands of dollars.
Hess and Elmer communities, Jackson County, Okla.	12	8 p.m.					$250	$6,000	Hail	Hail damaged 35 windows in schoolhouse. In Hess area, damage of 33 percent to feed crops and cotton.
Oklahoma City and vicinity (Capitol Hill area east of Pennsylvania Ave. and south of SW 20th St., Midwest City, Del City, Carter Park, and other adjacent areas), Okla.	12	11:30 p.m.					$87,500		do	Hail from golf ball to egg size, some larger. Greenhouses hard hit. Preliminary estimate by General Adjustment Bureau: 4,000 homes, damages to roofs and windows, at $200 per claim-$800,000; 300 business places, churches, and schools, at $250 per claim-$75,000; 750 automobiles, average damage $150-$112,500.
Miller's Island, Md.	13	All day							Winds, high tides, and flooding	Steady rains and high tides flooded Miller's Island to a depth of about 6 inches, endangering homes of about 600 families. Children waded over their shoe tops to get to buses.
Wilson County, Kans.	13	10:30 p.m.	†15	30			3,000		Wind and hail	Main force of storm hit airport north of Fredonia, where hangar and several small planes damaged. A little hail fell. Large tree limbs broken off in Fredonia. Some evidence of a tornado, but no funnel observed.
Sevier County (south and east of DeQueen), Ark.	14	3:30 a.m.					See remarks	2,000	do	Damage limited to small area where locally heavy hail and high wind stripped cotton plants in fields. Hail slightly damaged some roofs.
Midland, Midland County, Tex.	14	7 p.m.					50,000		Electrical	One 55,000-barrel steel oil storage tank set on fire.
Ephrata, Pa.	14		50						Winds	High winds over a narrow strip swept through Ephrata from the west. Trees blown over, power and phone lines downed, and some properties damaged.
Hamilton, Kearny, and Finney Counties, Kans.	15	Midnight to 2 a.m.	†1-4	25				10,000	Hail and rain	Storm extended from eastern Colorado to near Garden City. Ice from storm was present 10 hours after occurrence. Stones as large as 2 inches in diameter. Feed crops suffered principal damage from hail, but some livestock killed and buildings damaged. Much washing of fields from heavy rains.
Allen County, Kans.	15	9 a.m.							Hail	Hail about the size of peas fell on small area around Iola. Little damage.
Shawnee County, Kans.	15	11:20 a.m.					25		Wind	Wind of near 40 m.p.h. blew a partially completed garage over in southwestern Topeka.
Joplin, Mo.	15	4:30-4:45 a.m.	†5	5			2,000,000	Minor	Hail	Storm moved in with a roar from southwest, accompanied by very little wind. Hail came in two severe waves. Estimated 6,500 to 8,000 roofs severely damaged by jagged hailstones, some nearly 3 inches in diameter: average size, 1 inch. Windows in greenhouses shattered; electric and neon signs wrecked: automobiles badly dented; and awnings ruined.
Sasakwa area, Hughes County, Okla.	15	5:45-6 p.m.	440-880	6	0	6	99,000	1,000	Tornado, rain, wind, and hail	Three homes completely destroyed, and eight homes damaged. Three business places flattened. Oil tanks demolished. About 80 percent of damage to buildings and to cotton and peanut crops due to tornado, 10 percent to high wind, and 10 percent to heavy rain. Accompanied by light hail, with no damage by hail. Moved northeastward.
Arkansas River Valley, Colo.	15	8:30-10:13 p.m.	†3-15	90			150,000	200,000	Hail, rain and winds	Storm, consisting of heavy hail, moderate rain, and fresh winds, began at point south of Colorado Springs and zigzagged southeastwardly over path varying from 3 to 15 miles wide to the Fowler area, thence eastward

See footnotes at end of table.

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
										to central Bent County where it terminated. Greater damage to crops, windows, and roofs from hail. Hail stones from 1/4 to 2 inches in diameter and accumulat on ground to a depth of several inches at many point Damage in La Junta-Swink section most severe, with l ening losses occurring in vicinities of Manzanola, R Ford, Fowler, Las Animas, and area southeast of Colo Springs.
Savanna and vicinity, Pittsburg County, Okla.	16	1:30-2:15 a.m.			0	0	$2,000		Tornado, rain, electrical, and hail	Damage to several buildings and to trees and utility poles along south edge of Savanna and at U.S. Naval Depot nearby. Lightning struck a house which was damaged by fire that followed. Damage by lightning estimated at $1,000; damage by tornado, $900; damage by heavy rain, $100. Rainfall at U.S. Naval Depot w 6.12 inches. Accompanied by light hail.
Laramie County (southeastern portion), Wyo.	16	Evening					Slight	Slight	Rain and hail	
McLean, Mountrail, Grant, Eddy, and McHenry Counties, N. Dak.	17	Evening						See remarks	Hail	Some damage to crops.
Ottertail County, Minn.	18	2:45 a.m.	†5				3,500		Thunder-squalls, with hail and rain	A number of plate glass windows broken; roofs of buildings damaged; large sign torn away; a number of haystacks scattered; some trees uprooted or branches broken off; some damage to power and communication lines. Storm moved southeastward. Heavy rains and light to heavy hail accompanied storm and caused som additional damage.
Phoenix, Ariz.	18	1:08-1:30 p.m.	†1	8		13	*1,744,000	*	Thunder-storm, hail and wind	A thunderstorm moved from Estrella Mountains to north west of Laveen, and then northeastward diagonally ac eastern Phoenix. Path of heavy hail and destructive winds extended from about 11th Street and Buchanan Road to about 48th Street and Indian School Road. Winds in path of hurricane force. Airport Station recorded gusts to 75 m.p.h. and a 1-minute velocity of 50 m.p.h. from SW at 1:26 p.m. Widespread destruc of buildings in path of heaviest hail and wind. Man trees uprooted, and much damage caused by flying debris. Hail 2 inches deep with largest stones up t 3 inches in diameter. Extensive damage to aircraft at Sky Harbor Airport where 22 demolished and 22 badly damaged by hail and wind. Power and communica disrupted over large segment of eastern Phoenix. Thirteen persons hospitalized and 25 homeless as result of storm. Extensive roof damage by hail and wi Damage by hail, $680,000; wind, $554,000; and rain, $510,000.
Weyauwega and other sections of Waupaca County, Wis.	18	3:45 p.m.	1,000	10	2	9	*100,000	*	Winds	Severe squall line moved southeastward. Heavy, dark, rolling clouds seen, but no funnel-shaped clouds observed. Winds estimated to be 150 m.p.h. Destruc most severe in and near the City of Weyauwega. Some small farm buildings blown away. Four houses, 21 ba and 36 other farm buildings completely demolished. Twenty-three houses, 28 barns, and 53 other farm buildings damaged to some extent by wind. Other destruction included nine silos blown down, five business houses demolished, and nine business houses damaged. Approximately 50 percent of trees in and near Weyauwega uprooted. Telephone and electric pow services severely disrupted.
Menasha, Wis.	18	Afternoon					5,000		Wind, rain, and hail	High wind knocked down two high power electric lines. Heavy rain flooded low areas in city. A few hailsto size of golf balls.
Rockford area, Ill.	18	11 p.m.					15,000		Rain	Rain flooded basements, collapsed a store roof, and caved in wall of a home.
Mancelona, Mich.	18	P.m.					4,000		Electrical, wind, and rain	Barn struck by lightning and burned.
Marengo area, Ill.	18	Night					*30,000	*	Electrical	Large barn destroyed by lightning. Machinery and stored crops in barn also were lost.
Ridgeway, Wis.	18	Night					15,000	*	do	Barn, filled with hay and grain, struck by lightning and burned.

See footnotes at end of table.

Table 4—Continued

SEPTEMBER 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Washington County, Kans.	19	3 a.m.	†2 1/2	10				$60,000	Hail	Damage occurred in west-central part of county. Path eastward. Some hail 1 inch in diameter.
McDonough County (northern portion), Ill.	19	Afternoon					$20,000	5,000	Electrical and rain	Heavy rains flooded highways, causing some washouts. Barn destroyed by lightning.
Baltimore, Md.	19	7:30 p.m.					150		Electrical	Lightning struck chimney of home. Electric current cut off from homes in block. Man in cellar knocked down and sole of his shoe singed.
Mason County, Ky.	19-21					3	50,000	500,000	Rain	Major damages caused by flooding to crops and buildings. Said to be the worst rain and highest streams ever known in September.
Indianapolis, Ind.	20	A.m.							Electrical	Unusually severe thunderstorm. Two houses and one factory struck by lightning. Electric lines damaged.
Parke County, Ind.	20	A.m.							do	Corn crib struck by lightning and burned.
Shelbyville, Ill.	20	3 p.m.					5,000		Rain	Heavy downpour flooded many streets and basements in north side of city.
Orange (near) Ind.	20	8:30 p.m.							Electrical	Two barns struck by lightning and burned.
Grange Corner, Ind.	20								Hail	
Murphysville, Ky.	20								Rain and winds	Crops along creeks under water. Some corn and tobacco blown down by winds.
Olive Hill, Ky.	20-21				1		100,000	250,000	Rain	Heavy rains caused Tygart Creek to overflow its banks. Many stores and homes flooded. Crops, principally tobacco and wheat, damaged. Fatality caused by drowning.
South Dakota (southeastern portion, mostly Miner County).	20-21						50,000		do	Falls of 5 to 8 inches in 24 hours necessitated "bucket survey".
Mt. Carroll-Pleasant Valley - Stockton area, Ill.	21	12:30 a.m.							do	Heavy rain caused streams to overflow, flooding adjacent farm lands and highways. Many chickens and a few pigs drowned.
Freeport area, Ill.	21	1:30 a.m.					20,000		do	Many basements flooded in lower sections of city. Highways in area flooded.
Rockford, Ill.	21	2 a.m.					30,000		do	Streets and many basements flooded. Basement walls of 2 homes collapsed.
Decatur (1 mile north of), Ill.	21	4 a.m.					5,000		Wind	Small airplane wrecked; many trees downed or damaged; minor damage to farm buildings.
Hendricks County, Ind.	21	A.m.							Electrical	Barn struck by lightning.
Galva area, Ill.	21	2:30 p.m.	†2	8			5,000		Hail	Hailstones up to size of golf balls damaged roofs and broke many windows. Leaves stripped from corn.
Chillicothe, Ill.	21	Afternoon					1,500		Wind and rain	Large tent and several store awnings damaged by winds. Several trees downed.
Harding-Serena area, La Salle County, Ill.	21	Afternoon						50,000	Hail	Hail damaged corn and soybean crops on about 30 farms.
Cass County, Ind.	21	4 p.m.					900,000	100,000	Hail and wind	Hail in Logansport worst on record. Some stones 2 inches in diameter.
Howard County, Ind.	21	4 p.m.	†7	15			15,000	14,000	Hail	Hail up to 2 inches in diameter.
Montgomery County, Ind.	21	5 p.m.	†5				10,000	10,000	Wind and hail	Buildings, trees, wires, and crops damaged.
Delaware County, Ind.	21	5 p.m.	†2				4,000	1,000	do	Trees, wires, and corn damaged.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Hoopeston, Ill.	21	5 p.m.					$150,000		Wind	Winds estimated at 70 to 80 m.p.h. did much damage to property in city.
Lancaster County (from near Denton to Cheney), Nebr.	21	5:30 p.m.	35	18	0	0	2,000	$2,000	Tornado	Moved eastward, causing damage to farm buildings an blowing down corn in path; nearly all damage near Denton and Cheney. Observer near Denton reported seeing tornado cloud about 5:30 p.m.; he said it traveled about 1/2 mile, then rose into air, doing no damage.
Parkersburg, Pocataligo, Clendenin, several places in Kanawha County, and Huntington, W. Va.	21	Afternoon and evening					Minor	Minor	Rain	Damage consisted of flooded highways and basements, with much washing of gardens and crop lands along slopes.
Indianopolis, Ind.	21	8 p.m.					5,000		Wind	Trees and wires damaged.
Lawrence County, Ohio	21				1				Rain	Heavy showers beginning on the 19th culminated in flash floods in county streams. About 4.50 inches of rain fell. Roads under water, and basements fl One man drowned. One bridge washed away.
McCammon, Idaho	22	5:30 p.m.					2,500		Electrical	Lightning set fire to house 1 mile south of McCammo splintered utility pole 2 miles north of city.
Lake Huron, Mich.	23	A.m.			3				Winds	Three men drowned in Lake Huron, as a result of hig winds.
Tyrone, Pa.	24	Afternoon			1				Smoke	Man hit by auto while crossing street in Tyrone dur near blackout of daylight when dense layer of smok from Canadian forest fires produced weird lighting darkness.
Upper Chesapeake Bay, Md.	24	P.m.			2				Wind	Two men drowned when their small craft foundered in rough water caused by high wind.
Osborne County, Kans.	27	Afternoon	880	4				8,000	Hail	One storm occurred in northern part of county and another in extreme south. Feed and grain sorghums principal damage. Both strips narrow. Stones abo marble size. Storms moved eastward.
Rooks County, Kans.	28	10 a.m.	†2	5			3,500		do	Hail caused damage mainly in the vicinity of Stockt Storm moved eastward. Hailstones about 3/4 inch in diameter.
Rio Piedras, Guaynabo, Trujillo Alto, Carolina and Canovanas area, Puerto Rico	30	3-5 p.m.	†2-4	12			50,000	See remarks	Thunderstorms, with winds and hail	Trees blown down; roads blocked; electric power and communication lines broken; flimsy structures and some crops damaged. Hailstones size of peas, a ver rare phenomenon for Puerto Rico, observed. The hig winds estimated at 50 m.p.h. or more. Most property damage caused by high wind. Crop dam believed to be small.

PRELIMINARY TOTALS BY STORM TYPES FOR SEPTEMBER 1950

Type	Deaths	Injuries	Damage
Tornado	0	6	$ 84,900
Wind	7	24	1,435,425
Hail			4,745,250
Electrical	4	2	167,750
Rain	7	3	2,625,600
Hurricane	14	28	5,301,000
Smoke	1		
Total	33	63	$14,359,925

† Miles instead of yards.
* Crop damage included with other property damage.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

SEPTEMBER 1950

There were no major floods during the month. Several severe flash floods occurred in tributaries in the central Ohio Valley during the last decade of September causing heavy property damage. During this period the Ohio River reached its second highest September stage at Cincinnati, Ohio, since 1866. It was the first September in a period of 59 years that the Oostanaula River had overflowed at Resaca, Ga. It was also the first September in a period of 60 years that there had been any flooding along the Coosa River at Gadsden,Ala. Flooding along main streams was mostly light except in local areas in the Little Blue and Big Blue Basins in Nebraska and Kansas and in the Maury and other parts of James River Basin in Virginia where moderate to severe flooding occurred.

ATLANTIC SLOPE DRAINAGE.--Light flooding occurred in the headwaters of the Susquehanna and Chenango Rivers in the beginning of the month due to heavy rains between Aug. 31 and Sept. 2. During the 3-day period precipitation averaged 2.54 inches in the Chemung Basin, 3.17 inches in the Chenango Basin and 3.27 inches in the Susquehanna Basin east of Binghamton, N.Y. Minor damage resulted to highways and bridges in Chenango and Madison Counties in the Sherburne area on the Chenango River and in the Bainbridge area along the Susquehanna River.

There were two significant rises in the Rappahannock and Potomac Basins during the month. The first rise was due to prolonged moderate to heavy rains averaging around 3.5 inches between the 10th and 14th. Near bank-full stage was reached in the upper Rappahannock Basin at Remington, Va. (14.4 feet - flood stage 15 feet) during the afternoon of the 13th. There was some overflow in the Potomac Basin along Lunice Creek in the south part of Petersburg, W. Va., during the night of the 12th. Several families left their homes as a precautionary measure. There was no flooding along the main streams. Tides in the Washington, D.C.,area reached a stage of 6.1 feet at the Wisconsin Avenue gage during high tide in the morning of the 13th, the highest tidal stage since September 1945 when a stage of 6.7 feet was reached. This above normal tide (+2.6 feet) was due to strong easterly winds resulting from the passage of a hurricane off the Atlantic coast. The second rise was due to heavy rains on the 21st and 22d averaging 1.25 inches.

A minor flood occurred in the James River from Lynchburg to Richmond, Va., between the 10th and 12th and a very destructive flash flood occurred in the western tributaries of the Maury River (Kerrs, Buffalo and Whistle Creeks) on the 10th. Severe thunderstorms occurred over much of the James River Basin on the 9th and 10th, with torrential rains centering in the lower Maury River Basin. The average depth of the precipitation from the beginning of the rain to the time of flood crest, slightly over 24 hours, was about 4.25 inches. It averaged nearly 6 inches in the James River between Lick Run and Balcony Falls, Va., and in the Maury Basin above Lexington, Va. Severe damages resulted from the flooding in the lower Maury Basin and moderate in the James at and above Balcony Falls, Va. Damages elsewhere were light.

Light to moderate flooding occurred along the Roanoke River during the second decade of the month due to heavy rains in the upper portion on the 9th and 10th. A partial break-through occurred in the coffer dam above Weldon, N.C., on the evening of the 12th.

Minor flooding resulted along the Edisto River at Orangeburg, S.C., on the 10th after 2 days of heavy rain in the upper portion and 3 days of heavy rain in the lower portion.

EAST GULF OF MEXICO DRAINAGE.--Heavy to excessive rains from Aug. 30 to Sept. 1 over the Choctawhatchee River Basin caused slight flooding in the lower portion at Caryville, Fla., from the 2d to the 4th.

Some flooding resulted along the Oostanaula River at Resaca, Ga.,and along the Coosa River at Gadsden, Ala., due to heavy rain accompanying the tropical hurricane as it moved from south-central Georgia, northwestward to extreme northern Alabama on the 7th and 8th. The precipitation averaged 3.75 inches over the Oostanaula Basin with a total of 6.78 inches at Resaca, Ga. Over the Etowah Basin, the precipitation averaged 3.36 inches with a total of 7.58 inches at Taylorsville, Ga. It was the first time in a period of 59 years that the Oostanaula River had exceeded flood stage (22 feet) during the month of September at Resaca, Ga. The crest of 22.5 feet exceeded the highest previous September stage of 21.0 feet in 1898 by 1.5 feet. It was also the first time in a period of 60 years that the Coosa River had exceeded flood stage (20 feet) at Gadsden, Ala., during the month of September. The crest of 21.5 feet was 3 feet higher than the previous September maximum stage of 18.5 feet established in 1898.

Heavy rains occurred over the Tombigbee Basin as the hurricane moved inland near Mobile, Ala., on Aug. 30. Aberdeen, Miss., recorded over 10 inches in 5 days while Columbus, Miss., recorded approximately 7 inches in the same period. The only flooding that resulted was at Aberdeen, Miss., and Whitefield, Ala., as the basin was exceptionally dry before this storm so the runoff was at a minimum.

UPPER MISSISSIPPI BASIN.--Exceptionally heavy showers during the night of the 20th-21st over the middle portion of the Upper Mississippi Basin caused flash rises in several small streams. Zwingle, Iowa, in the steep walled, narrow ravine, only about 3 miles from the headwaters of Otter Creek, was hardest hit. Several homes and business places were flooded to a depth of 5 feet at about 2:30 in the morning of the 21st, making it necessary for several people to leave their homes. The flood waters receded in about one hour. Many other points in the Wapsipinicon, Maquoketa, Little Maquoketa, and Turkey River Valleys in Iowa, the Rock River and smaller stream valleys in northwestern Illinois and in southern Wisconsin suffered similar flash rises. Considerable damage occurred in numerous small areas due to the flash floods.

MISSOURI BASIN.--Severe flooding occurred along the Little Blue River at Endicott, Nebr., and Hanover, Kans., and moderate flooding along the Big Blue River at Blue Rapids, Kans., during the night of the 19-20th due to locally heavy rains. Minor flooding resulted along the Republican River from the same storm. The overflow along the lower Solomon was due to high water in the upper portion of the basin in August moving downstream. Damages were heavy in the Little Blue Basin in Nebraska but relatively minor elsewhere except for some local bridge damages on the lower Solomon.

Heavy rains in the Headwaters of the Osage during the latter part of August caused some flooding at Warsaw and Lakeside, Mo., between Aug. 30 and Sept. 6.

OHIO BASIN.--There were three periods of heavy

rain during the month. The first period occurred from the 1st through the 4th, with the heaviest rain concentrated over the Wabash, West Fork of the White and the Green Rivers. The largest 24-hour amounts exceeded 6 inches, covering portions of the Wabash and White Rivers. This rain caused stages of 1 to 4 feet above flood stage at points from Wabash to Terre Haute on the Wabash River and also on the lower White River. Sugar Creek and all small streams in that area were swollen to several times their normal size and one large bridge and several smaller culverts were washed out. The lower Green River exceeded flood stage from 1 to 4 feet between the 3d and 13th. The South Chickamauga Creek at Chattanooga, Tenn., overflowed from the 1st to the 4th and again from the 7th to the 12th. No damages resulted along the main streams.

The second period of general rainfall from the 10th through the 13th was of very little importance but did cause the Ohio River to go out of pool for a few days.

During the third period, from the 19th through the 22d, the heavy rain was concentrated along the Ohio River and on tributaries in the central Ohio Valley, mainly the lower Kanawha, the Sandy, the Licking and also the lower Miami, Little Miami, and lower Scioto Rivers.

The damages in the Little Sandy River Basin were caused by a severe thunderstorm accompanied by heavy rain on the 21st. The thunderstorm and heavy rain began at 2 p.m. and lasted until about 4 p.m. In the area upstream from Grayson, Ky., the local residents stated the rainfall during the two hours was the heaviest they had ever seen. They estimated the rainfall for the two hours to be from 4 to 8 inches. No accurate measurements were obtained as all of the containers left outside were washed away, overflowed, or the amounts were considered unreliable. On Little Fork of the Little Sandy the damage was heaviest; about 50 houses, 5 stores and 2 churches were flooded with several of the houses being moved about on their foundations. The water came out of the creeks in waves washing almost everything with it. The crest in the smaller streams came about one hour after the end of the heavy rain. On the main river about Grayson the damage was severe, numerous houses were flooded with one being washed away and destroyed and crops in the fields along the river were damaged. From Grayson to the mouth of the river 30 miles downstream, the damages were mostly due to the flooding of the low lands, where the valley is rather wide and cultivated. Farm buildings, crops, and a portion of the communities in this area were flooded to the highest stage ever known. A total of 37 houses were damaged along with heavy crop damage.

The farms and villages along the Mud River in Lincoln and Cabell Counties in West Virginia were flooded on the 21st and 22d. Mud River flows into the Guyandotte River near Huntington. Practically all the land in this basin that is ever flooded was flooded during these two days. Many streams were the highest ever known, with heavy damages to the crops in the fields, roads, farm buildings, bridges and highways. Three houses were washed from their foundations and one was completely destroyed. Eight inches of rain fell in Hamlin, W. Va., in a 72-hour period.

Small areas in the Kanawha and Elk River Basins were flooded on the 21st. The damages were mostly on the smaller streams from a short distance above Clay, W. Va., to the mouth and along a few of the small streams in the Charleston area. The 24-hour total of rainfall at Clay on the 22d at 7 a.m. was 3.34 inches, the monthly total was 13.83 inches.

Several new monthly rainfall records were established for the month of September at a number of substations in the upper Ohio Basin. At Huntington, W. Va., the total rainfall for the month was 8.9 inches. The previous maximum monthly rainfall was 6.5 inches in September 1924.

The heavy rain during the third period caused a rapid rise in the Ohio River from Gallipolis Dam to Cincinnati, Ohio. The crest stage of 36.8 feet at Cincinnati on the 24th was the second highest stage of record for the month of September. The highest September stage was 42.5 feet in 1866.

ARKANSAS BASIN.--Some flooding occurred along the Canadian River near Whitefield, Okla., on the night of the 16th and on the 17th, and along the Deep Fork near Dewar, Okla., from the 16th to the 21st due to heavy rains of from 3 to nearly 7 inches during the night of the 15-16th. Minor flooding resulted along the Petit Jean at Danville, Ark., on the 17th from this same storm. The flooding along the Arkansas at Van Buren, Ark., was due mostly to the high flow from the Canadian River. The heavy rains (3 inches) on the 15th and 16th between Muskogee, Okla., and Van Buren, Ark., was a minor contributing factor in this flood. Only minor damages resulted from the flooding.

RED BASIN.--The flooding in the Red Basin between the 17th and 29th was due to numerous moderate to heavy showers and thundershowers between the 13th and 16th. The rains on the 13th and 14th averaged 3.5 inches over the Little Basin and 4.35 inches over the Sulphur. During this same period rains of 2 to 3 inches fell over the Cypress River and also over the Clear and Muddy Boggy and Kiamichi Rivers in Oklahoma. During the night of the 16th, the rainfall over the Little Basin averaged 3.66 inches and over the Sulphur River around 4 inches. Flood losses in the basin were small except in the Sulphur Basin where the flooding was more estensive.

WEST GULF OF MEXICO DRAINAGE.--Minor flooding occurred along the Sabine River at Mineola, Tex., between the 23d and 25th due to numerous heavy showers near the middle of the month. Damages from this overflow were light.

There were two period of flooding in the Trinity River Basin. The first overflow occurred in the upper portion of the East Fork between Aug. 31 and Sept. 2, and was due to heavy thundershowers on Aug. 27 and 28. Additional rains from the 3d to the 5th caused the Trinity to go above flood stage at Dallas, Tex. The second period of overflows occurred during the second half of the month and was due to heavy showers on the 13th, 16th, and 17th. Additional heavy rain on the 19th was not sufficiently heavy to do more than check the already falling river.

FLOOD STAGE DATA

Table 5 (All dates in September unless otherwise specified) SEPTEMBER 1950

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE	Ft.			Ft.	
Tioughnioga: Whitney Point, N.Y.	12	1	1	12.7	1
Chenango:					
Sherburne, N.Y.	8	1	2	9.9	1
Greene, N.Y.	8	2	3	9.2	2
Susquehanna:					
Oneonta, N.Y.	12	1	2	15.9	2
Bainbridge, N.Y.	13	2	3	15.9	2
Conklin, N.Y.	11	2	3	13.1	3
James:					
Scottsville, Va.	20	11	11	20.4	11
Bremo Bluff, Va.	19	11	12	25.3	11
Columbia, Va.	18	11	12	25.2	11
State Farm, Va.	12	11	12	15.7	12
Richmond, Va.	8	12	12	9.6	12
Roanoke:					
Altavista, Va.	18	10	11	24.7	11
Randolph, Va.	21	12	12	24.0	12
Weldon, N.C.	31	* 14	14	36.0	14
Williamston, N.C.	10	17	20	10.3	19
Edisto: Orangeburg, S.C.	8	10	10	8.1	10
EAST GULF OF MEXICO DRAINAGE					
Choctawhatchee: Caryville, Fla.	12	2	4	12.5	3
Oostanaula: Resaca, Ga.	22	8	9	22.7	9
Coosa: Gadsden, Ala.	20	11	14	21.7	12
Tombigbee:					
Aberdeen, Miss.	34	3	9	37.2	6
Lock No. 3	33	3	17	41.0	12
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Rock: Moline, Ill.	10	23	23	10.0	23
Missouri Basin					
Solomon:					
Beloit, Kans.	18	30	30	18.4	30
Minneapolis, Kans.	26	1	3	28.4	3
Niles, Kans.	24	1	5	28.1	4
Republican:					
Hardy, Nebr.	11	20	20	11.1	20
Scandia, Kans.	10	20	20	10.3	20
Clay Center, Kans.	15	21	21	16.5	21
		29	29	16.0	29
Little Blue:					
Endicott, Nebr.	9	21	24	14.5	21
				11.5	23
				12.0	24
Hanover, Kans.	14	21	23	19.3	22
Big Blue: Blue Rapids, Kans.	20	22	23	23.8	23
		29	29	20.3	29
Osage:					
Warsaw, Mo.	31	Aug. 30	1	31.5	Aug. 31
Lakeside (Bagnell Dam), Mo.	50	Aug. 30	6	60.5	Aug. 31
Ohio Basin					
Tygart: Dailey, W. Va.	9	2	2	10.5	2
Paint Creek: Bourneville, Ohio	10	21	22	13.3	21
Little Sandy: Grayson, Ky.	30	21	22	32.5	22
Licking: Farmers, Ky.	25	21	22	25.5	21-22
Green:					
Lock No. 4, Woodbury, Ky.	33	3	6	37.0	5
Lock No. 2, Rumsey, Ky.	34	6	13	35.7	10
West Fork:					
Anderson, Ind.	10	23	23	10.5	23
Edwardsport, Ind.	12	2	7	16.0	4
		24	27	13.8	26
Wabash:					
Wabash, Ind.	12	2	2	15.0	2
La Fayette, Ind.	11	2	4	15.4	3
Covington, Ind.	16	4	4	16.7	4

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.)	Ft.			Ft.	
Ohio Basin (Cont'd.)					
Wabash: (Cont'd.)					
Montezuma, Ind.	--	--	--	18.4	23
Terre Haute, Ind.	14	4	4	14.3	4
		22	25	15.8	23
Hutsonville, Ill.	--	--	--	17.9	25
South Chickamauga Creek:					
Chickamauga, Tenn.	10	1	4	13.8	2
		7	12	17.6	8
Arkansas Basin					
Deep Fork: Dewar, Okla.	18	16	21	20.5	17
Canadian: Whitefield, Okla.	16	17	17	18.7	17
Petit Jean: Danville, Ark.	20	17	17	20.0	17
Arkansas:					
Great Bend, Kans.	8	Aug. 30	2	9.8	1
Hutchinson, Kans.	6	1	3	6.8	3
Van Buren, Ark.	22	17	18	22.8	17
Red Basin					
Little Missouri: Boughton, Ark.	20	18	18	20.7	18
Ouachita:					
Arkadelphia, Ark.	17	17	19	22.5	18
Camden, Ark.	26	19	26	32.8	22
Little:					
Boratio, Ark.	21	--	--	32.8	17
Whitecliffs, Ark.	25	18	25	28.4	19
Sulphur:					
Hagansport, Tex.	38	15	23	39.3	15
				41.0	17
Naples, Tex.	22	17	29	29.4	19
McCartney Bridge, Tex.	22	17	Oct. 1	27.8	23
Cypress:					
Jefferson, Tex.	18	17	25	22.9	21
WEST GULF OF MEXICO DRAINAGE					
Sabine: Mineola, Tex.	14	23	25	14.9	24
Elm Fork: Carrollton, Tex.	6	15	18	12.2	16
East Fork: Rockwall, Tex.	10	Aug. 31	2	12.7	1
		15	20	15.4	16
Trinity:					
Dallas, Tex.	28	5	8	30.5	6
		15	22	35.5	18
Rosser, Tex.	26	19	25	30.6	22
Trinidad, Tex.	28	22	29	33.0	27

* Provisional.

RADIOSONDE DATA

Average monthly values

Table 20 — SEPTEMBER 1950

Standard pressure surface (mb)	ALBANY, N. Y. (1098 MB.)				ALBUQUERQUE, N. MEX. (839 MB.)				ATLANTA, GA. (981 MB.)				BIG SPRING, TEX. (925 MB.)				BISMARCK, N. DAK. (957 MB.)				BOISE, IDAHO (914 MB.)				BROWNSVILLE, TEX (1011 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	86	12.6	87	30	1,650	20.8	39	30	307	20.8	80	20	784	22.1	69	26	505	14.7	69	30	868	19.1	46	30	6	27.2	76
1,000--	30	149	13.9	79	30	64			30	109			20	181			26	428			30	30			30	106	27.0	74
950----	29	586	12.7	74	29	527			30	591	20.8	71	20	556			26	576	12.7	63	30	531			30	562	24.3	72
900----	30	1,034	10.4	72	30	1,000			30	1,053	18.3	72	30	1,047	23.1	50	26	1,027	15.3	51	30	995	21.1	34	30	1,022	22.1	61
850----	30	1,509	8.6	66	30	1,494			30	1,541	15.5	71	30	1,524	20.2	60	26	1,509	12.3	52	30	1,490	17.6	33	30	1,527	19.5	58
800----	30	2,009	6.7	56	30	2,025	19.1	35	30	2,054	12.8	68	30	2,045	16.7	60	26	2,014	9.6	52	30	2,004	14.0	35	30	2,047	16.3	58
750----	30	2,544	4.9	45	30	2,583	15.0	37	30	2,601	10.2	62	30	2,590	13.1	56	26	2,557	6.6	53	30	2,545	9.5	40	30	2,598	13.0	56
700----	30	3,095	2.3	41	30	3,156	10.3	41	30	3,166	7.3	56	30	3,170	9.3	55	26	3,110	3.3	52	30	3,111	4.8	47	30	3,171	9.5	55
650----	30	3,696	- 0.9	42	30	3,776	5.2	45	30	3,776	4.3	52	30	3,782	5.2	53	26	3,717	- 0.4	50	30	3,713	0.1	51	30	3,738	6.0	51
600----	30	4,329	- 4.2	39	30	4,414	- 0.1	52	29	4,422	1.2	45	30	4,429	0.9	51	26	4,344	- 3.5	43	30	4,346	- 4.6	51	30	4,424	2.7	44
550----	30	5,011	- 8.3	40	30	5,107	- 5.0	50	26	5,124	- 2.7	45	30	5,133	- 3.1	45	26	5,033	- 8.2	40	30	5,020	- 9.1	49	30	5,138	- 0.9	35
500----	30	5,743	-12.9	37	30	5,848	- 9.5	48	26	5,868	- 7.2	38	30	5,873	- 7.6	49	26	5,758	-13.2	42	30	5,753	-14.2	46	30	5,688	- 5.5	31
450----	30	6,540	-18.1	35	30	6,663	-14.7	47	26	6,680	-12.5	42	29	6,687	-13.1		26	6,561	-19.0	37	29	6,547	-19.7	45	30	6,713	-10.3	
400----	30	7,408	-24.0	37	30	7,536	-20.8	32	28	7,572	-18.5	44	30	7,572	-19.5	38	26	7,448	-25.5	37	29	7,409	-25.8	41	30	7,604	-16.8	
350----	30	8,368	-31.3		29	8,515	-27.8		28	8,584	-25.6	45	30	8,551	-26.5	35	26	8,372	-32.6		28	8,286	-33.0		30	8,592	-23.9	
300----	28	9,464	-39.1		29	9,603	-36.4		26	9,654	-33.4		29	9,648	-34.3		26	9,480	-40.5		27	9,429	-41.0		29	9,702	-32.3	
250----	27	10,689	-47.2		28	10,841	-45.5		27	10,912	-42.9		27	10,901	-43.5		26	10,663	-48.1		25	10,653	-48.5		28	10,961	-42.5	
200----	23	12,152	-54.1		26	12,300	-54.0		22	12,372	-53.9		25	12,367	-53.6		26	12,122	-55.5		24	12,037	-53.1		28	12,430	-54.0	
175----	22	12,998	-56.9		27	13,147	-58.5		22	13,220	-59.5		24	13,242	-59.2		25	12,957	-55.2		23	12,959	-54.7		28	13,272	-60.3	
150----	17	13,974	-59.9		27	14,105	-63.1		22	14,178	-64.4		24	14,166	-65.1		21	13,933	-56.4		23	13,936	-57.1		29	14,218	-66.9	
125----	14	15,127	-63.1		24	15,211	-66.9		19	15,287	-68.2		22	15,259	-69.6		16	15,069	-58.3		17	15,068	-58.7		28	15,382	-72.9	
100----	7	16,487	-62.5		24	16,553	-68.4		17	16,630	-68.8		19	16,574	-70.6		10	16,477	-58.1		12	16,544	-59.9		26	16,696	-73.4	
80-----	6	17,856	-60.9		17	17,895	-66.3		14	17,960	-66.0		14	17,916	-66.5		11	17,853	-57.7		8	17,897	-60.6		17	17,922	-69.7	
60-----					6	19,695	-63.4		9	19,741	-61.1		7	19,651	-61.9		8	19,679	-56.2						11	19,664	-63.2	

Standard pressure surface (mb)	BUFFALO, N. Y. (992 MB.)				BURWOOD, LA. (1013 MB.)				CAMAGUEY, CUBA (1001 MB.)				CARIBOU, MAINE (984 MB.)				CHARLESTON, S. C. (1015 MB.)				CIUDAD VICTORIA, MEX. (972 MB.)				COLUMBIA, MO. (939 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	221	14.7	82	30	3	25.9	80	12	122	23.1		30	199	8.3	83	30	13	21.4	89	29	335	30.2	52	30	239	17.9	83
1,000--	30	152			30	120	25.6	79	12	132	23.1		30	138			30	139	22.6	78	28	80			30	138		
950----	30	592	14.5	72	30	571	22.8	77	12	590	23.4		30	571	10.0	68	30	591	21.1	73	29	542	28.9	32	30	585	16.9	70
900----	30	1,044	12.1	68	30	1,040	20.0	72	12	1,053	21.0		30	1,014	8.0	62	30	1,054	18.8	72	29	1,019	23.3	55	30	1,044	16.1	69
850----	30	1,521	9.8	66	30	1,532	17.1	62	12	1,547	18.3		29	1,486	5.7	57	30	1,543	15.8	72	28	1,519	21.0	62	30	1,529	14.5	57
800----	30	2,022	7.4	59	30	2,048	14.5	61	12	2,065	15.0		29	1,980	3.7	49	30	2,057	13.0	66	29	2,040	16.5	70	30	2,040	12.7	50
750----	30	2,559	5.1	57	30	2,585	11.9	54	12	2,610	11.7		29	2,510	1.8	44	30	2,604	10.6	51	29	2,593	12.4	73	30	2,587	10.1	49
700----	30	3,112	2.5	51	30	3,157	9.2	47	12	3,185	8.5		29	3,056	- 0.4	37	30	3,170	8.0	43	29	3,164	9.0	67	30	3,151	7.0	46
650----	30	3,711	- 0.7	51	30	3,782	6.2	43	12	3,798	4.8		29	3,654	- 3.9	40	30	3,785	5.0	36	27	3,780	5.5	65	30	3,762	3.4	43
600----	29	4,343	- 4.4	41	30	4,430	2.8	39	12	4,445	0.8		29	4,273	- 7.3		30	4,428	1.4	36	27	4,424	1.8	57	30	4,401	- 0.3	36
550----	28	5,022	- 8.2	36	30	5,134	- 1.2	31	11	5,145	- 3.1		29	4,947	-11.2	39	30	5,129	- 2.4	36	26	5,127	- 1.5	47	30	5,093	- 4.9	36
500----	28	5,752	-12.5	35	30	5,883	- 5.6	29	11	5,891	- 7.0		29	5,671	-15.8	39	30	5,874	- 7.1	37	26	5,825	- 5.8	41	30	5,835	- 9.5	32
450----	25	6,554	-18.0	36	30	6,709	-11.0	34	11	6,710	-11.8		29	6,461	-21.0	37	30	6,694	-12.2	35	26	6,703	-10.7		30	6,645	-15.1	32
400----	23	7,417	-24.4	39	30	7,587	-17.2	31	11	7,600	-17.5		29	7,319	-26.9	35	30	7,479	-18.2	32	25	7,595	-16.6		30	7,520	-21.5	35
350----	23	8,375	-31.8		30	8,585	-25.0		11	8,586	-24.3		29	8,268	-33.7	35	30	8,502	-25.0	36	25	8,583	-23.8		30	8,491	-28.3	38
300----	27	9,443	-39.3		30	9,691	-32.0		11	9,692	-33.1		24	9,322	-41.1		30	9,664	-33.2	37	23	9,690	-32.1		30	9,579	-36.2	39
250----	27	10,670	-47.4		30	10,953	-41.5		11	10,946	-43.5		20	10,552	-47.9		30	10,919	-43.1		21	10,956	-41.8		29	10,826	-44.4	
200----	25	12,112	-54.6		28	12,428	-53.2		11	12,496	-56.4		28	12,206	-53.1		30	12,386	-54.2		18	12,437	-52.0		28	12,291	-53.2	
175----	22	12,958	-57.5		28	13,273	-59.3		11	13,242	-62.5		28	12,856	-54.0		29	12,828	-59.8		18	13,282	-60.1		28	13,142	-57.3	
150----	19	13,932	-60.2		27	14,222	-65.3		9	14,173	-70.3		24	13,849	-55.7		29	14,180	-64.5		16	14,228	-66.8		27	14,104	-60.8	
125----	18	15,062	-61.6		23	15,313	-70.4		7	15,243	-76.3		19	15,092	-57.0		27	15,279	-67.9		11	15,305	-73.0		24	15,236	-63.7	
100----	12	16,467	-61.2		16	16,632	-71.2		6	16,518	-76.4		11	16,415	-56.0		22	16,609	-68.0		5	16,582	-71.0		17	16,587	-63.2	
80-----	5	17,920	-61.1		15	17,963	-66.4						7	17,834	-54.2		22	17,958	-64.5						12	17,943	-61.7	
60-----																	15	19,735	-59.3									
50-----																	9	20,877	-56.9									
40-----																	5	22,286	-53.4									

Standard pressure surface (mb)	DODGE CITY, KANS (807 MB.)				EL PASO, TEX. (861 MB.)				ELY, NEV. (803 MB.)				GLASGOW, MONT. (941 MB.)				GRAND JUNCTION, COLO. (852 MB.)				GREAT FALLS, MONT (869 MB.)				GREENSBORO, N. C. (286 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	792	17.6	73	29	1,196	24.8	42	30	1,506	14.4	48	30	642	15.0	61	30	1,474	19.0	42	30	1,128	14.6	48	30	273	18.4	88
1,000--	29	849			29	48			30	72			30	122			30	62			30	212			30	155		
950----	30	976			29	896			30	926			30	565			30	521			30	588			30	605	19.3	71
900----	30	1,096	18.6	65	29	1,007			30	996			30	1,024	15.7	46	30	996			30	1,022			30	1,061	16.7	69
850----	30	1,530	15.7	65	29	1,488	24.5	26	30	1,488			30	1,506	12.5	47	30	1,489	19.4	42	30	1,503	13.9	44	30	1,547	14.1	71
800----	30	2,042	13.3	60	29	2,035	20.3	26	30	2,007	16.0	40	30	2,010	8.2	53	30	2,012	18.5	36	30	2,041	10.0	48	30	2,057	11.6	65
750----	30	2,589	10.7	50	29	2,582	15.7	32	30	2,554	12.7	41	30	2,541	4.5	52	30	2,565	14.2	40	30	2,547	5.8	51	30	2,602	9.1	61
700----	30	3,157	7.9	43	29	3,168	10.8	47	30	3,128	8.0	47	30	3,099	1.0	51	30	3,139	9.4	44	30	3,104	1.6	52	30	3,165	6.3	57
650----	30	3,785	4.0	41	29	3,785	5.7	36	30	3,728	2.8	55	30	3,694	- 2.5	50	30	3,748	4.3	50	30	3,701	- 2.4	47	30	3,773	2.9	52
600----	29	4,445	- 0.3	41	29	4,430	1.4	32	30	4,376	- 2.4	61	30	4,321	- 6.7	46	30	4,393	- 1.1	54	30	4,327	- 3.8	43	30	4,413	- 0.4	42
550----	29	5,100	- 4.7	30	29	5,127	- 3.1	47	30	5,056	- 7.5	61	30	4,987	-11.2	44	30	5,078	- 6.7	58	30	5,002	-11.1	41	30	5,110	- 4.1	39
500----	28	5,844	- 9.5	32	29	5,873	- 7.9	38	30	5,796	-12.7	56	30	5,720	-16.2	43	30	5,817	-12.3	56	30	5,725	-16.0	40	30	5,851	- 8.8	38
450----	29	6,651	-14.9	32	29	6,692	-12.9		29	6,591	-18.2	48	29	6,506	-22.0	38	30	6,617	-17.8	48	30	6,517	-21.7	39	30	6,666	-13.8	40
400----	28	7,491	-21.1		26	7,574	-19.0		30	7,461	-24.4	41	29	7,357	-28.6		30	7,485	-23.8	43	30	7,366	-28.1	40	30	7,546	-19.7	38
350----	26	8,502	-28.7		27	8,597	-25.9		30	8,419	-31.7	40	28	8,307	-35.4		30	8,446	-30.7	44	29	8,307	-34.4		30	8,524	-26.6	
300----	29	9,586	-37.0		27	9,654	-34.2		30	9,491	-39.7		28	9,365	-42.0		30	9,522	-38.5		29	9,389	-41.1		29	9,618	-34.5	
250----	29	10,822	-45.7		27	10,961	-43.6		30	10,716	-47.3		28	10,582	-48.4		29	10,746	-46.4		28	10,550	-48.0		29	10,860	-44.1	
200----	29	12,232	-53.1		24	12,373	-52.4		30	12,162	-52.9		27	12,025	-53.3		29	12,202	-53.4		28	12,044	-52.5		29	12,328	-54.7	
175----	29	13,135	-56.7		23	13,223	-58.7		28	13,026	-55.3		24	12,902	-55.1		28	13,098	-55.9		26	12,967	-54.5		27	13,162	-59.5	
150----	27	14,106	-60.6		18	14,165	-64.0		27	13,998	-58.0		22	13,885	-57.3		27	14,032	-58.6		24	13,896	-56.5		27	14,115	-63.8	
125----	24	15,231	-64.4		15	15,272	-68.3		24	15,137	-61.1		20	15,041	-59.3		25	15,182	-61.0		20	15,063	-58.6		22	15,231	-66.0	
100----	22	16,377	-65.4		14	16,395	-69.8		24	16,519	-61.3		15	16,446	-60.2		17	16,548	-62.6		12	16,435	-59.9		16	16,585	-66.7	
80-----	15	17,529	-62.6		12	17,566	-66.4		24	17,905	-60.5		13	17,864	-59.8		13	17,914	-61.1		13	17,891	-58.7		11	17,956	-64.4	
60-----	6	19,705	-59.9		6	19,719	-61.4		6	19,736	-59.5		6	19,865	-57.1						8	19,827	-57.5					

These average values for standard pressure surfaces were obtained by radiosondes: dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

SEPTEMBER 1950

Standard pressure surface (mb)	HATTERAS, N. C. (1017 MB.)				HAVANA, CUBA. (1007 MB.)				HILO, T. H. (1013 MB.)				INTERNAT. FALLS, MINN. (975 MB.)				JOLIET, ILL. (996 MB.)				LAKE CHARLES, LA. (1013 MB.)				LANDER, WYO. (831 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	3	22.6	85	30	49	25.2	89	29	9	25.8	72	30	361	11.4	85	30	179	15.2	87	30	5	23.3	84	30	1,686	12.9	57
1,000--	30	145	22.3	80	30	112	25.4	86	29	124	24.9	73	30	142			30	147			30	120	24.9	74	30	100		
950----	30	591	20.0	76	30	570	23.2	82	29	582	21.1	78	30	578	14.0	69	30	592	16.5	73	30	575	22.9	71	30	551		
900----	30	1,056	17.1	75	30	1,035	20.8	78	29	1,040	17.6	82	30	1,031	11.5	66	30	1,045	14.1	70	30	1,040	19.5	71	30	1,018		
850----	30	1,542	14.3	73	30	1,528	18.3	74	29	1,527	14.7	81	30	1,507	9.4	61	30	1,526	12.0	64	30	1,531	17.1	64	30	1,501		
800----	30	2,053	11.8	66	30	2,047	15.5	73	29	2,039	12.5	72	30	2,009	7.3	53	30	2,032	10.3	54	30	2,047	14.9	55	30	2,014	13.8	49
750----	30	2,596	8.5	56	30	2,598	12.7	66	29	2,594	11.5	49	30	2,547	5.0	46	30	2,571	8.0	52	30	2,598	12.0	53	30	2,560	9.8	50
700----	30	3,162	6.5	52	30	3,170	9.8	61	29	3,155	10.0		30	3,098	2.6	42	30	3,134	5.0	45	30	3,166	8.7	55	30	3,124	5.8	53
650----	30	3,769	3.4	46	30	3,791	6.5	55	29	3,777	6.7		30	3,699	- 0.8	45	30	3,741	1.5	44	30	3,784	5.2	53	30	3,729	1.2	57
600----	30	4,412	- 0.2	42	30	4,436	2.8	55	29	4,420	3.1		30	4,329	- 4.4	45	30	4,376	- 2.3	42	30	4,425	1.4	50	30	4,364	- 3.6	59
550----	29	5,104	- 4.0	38	30	5,142	-1.2	54	29	5,121	- 0.9		30	5,011	- 8.7	42	30	5,065	- 6.2	36	30	5,127	- 2.5	44	30	5,048	- 8.6	57
500----	29	5,848	- 8.5	34	30	5,891	-5.3	42	20	5,874	- 5.3		29	5,740	-13.5	38	30	5,802	-11.0	36	30	5,870	- 6.7	36	30	5,777	-13.6	55
450----	29	6,667	-13.6	41	30	6,716	-10.1	38	29	6,699	-10.7		28	6,586	-19.3	35	30	6,612	-16.5	35	30	6,692	-11.9	35	30	6,576	-18.9	47
400----	29	7,544	-19.8	39	30	7,610	-16.0	34	29	7,588	-17.3		28	7,395	-25.5	34	30	7,479	-23.0	37	29	7,576	-18.0		30	7,438	-24.8	40
350----	29	8,521	-26.7	41	30	8,601	-23.1		27	8,576	-24.7		29	8,350	-32.4	36	30	8,443	-30.1		29	8,560	-25.1		30	8,395	-32.2	38
300----	29	9,615	-34.8	44	30	9,712	-31.3		27	9,677	-33.6		26	9,411	-40.6		29	9,519	-38.3		29	9,661	-33.1		29	9,471	-40.3	
250----	29	10,861	-44.4		30	10,975	-41.4		27	10,928	-43.9		25	10,633	-48.9		29	10,750	-46.3		28	10,917	-42.8		29	10,691	-48.5	
200----	28	12,369	-54.8		29	12,449	-53.6		26	12,385	-55.9		18	12,074	-55.2		29	12,205	-54.2		28	12,385	-54.1		28	12,148	-53.1	
175----	28	13,160	-59.6		29	13,294	-60.4		26	13,223	-61.8		14	12,926	-55.6		29	13,054	-57.8		28	13,229	-60.0		28	13,003	-55.3	
150----	27	14,117	-64.2		27	14,239	-67.6		21	14,162	-67.7		9	13,925	-57.8		29	14,018	-61.6		28	14,176	-66.1		28	13,981	-57.6	
125----	22	15,214	-66.4		23	15,319	-73.4		15	15,251	-72.0						27	15,145	-62.4		26	15,266	-71.3		28	15,126	-59.4	
100----	16	16,552	-65.9		20	16,610	-75.1		6	16,569	-73.1						22	16,517	-62.6		24	16,560	-71.8		22	16,516	-60.5	
80-----	13	17,919	-63.3		14	17,922	-69.9		5	17,882	-69.6						13	17,883	-61.2		26	17,908	-68.3		18	17,900	-60.2	
60-----					12	19,650	-65.3														14	19,657	-62.8		8	19,755	-58.2	
50-----					5	20,792	-61.6														8	20,785	-60.7					

Standard pressure surface (mb)	LAS VEGAS, NEV. (933 MB.)				LITTLE ROCK, ARK. (1006 MB.)				MAZATLAN, MEXICO (1007 MB.)				MEDFORD, ORE. (968 MB.)				MERIDA, MEXICO (1009 MB.)				MIAMI, FLA. (1014 MB.)				NANTUCKET, MASS. (1016 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	660	26.9	22	30	79	20.3	88	30	14	29.2	76	30	401	20.8	47	30	27	27.2	81	30	4	26.1	84	29	14	14.5	88
1,000--	30	39			30	131	20.8	85	30	78	28.7	76	30	312			30	108	26.8	80	30	124	25.9	80	29	151	15.6	78
950----	30	500			30	580	20.0	79	30	544	25.3	80	30	568	21.7	39	30	564	24.1	79	30	577	23.0	78	29	588	13.8	70
900----	30	980	28.0	20	30	1,041	17.4	76	30	1,009	22.9	79	30	1,026	18.5	42	30	1,034	21.5	73	30	1,046	20.0	78	29	1,040	11.8	66
850----	30	1,482	23.7	22	30	1,529	15.1	72	30	1,507	20.2	77	30	1,513	14.9	46	30	1,528	18.6	72	30	1,538	17.0	77	29	1,516	10.3	61
800----	30	2,007	19.1	26	30	2,041	13.3	62	30	2,028	17.3	72	30	2,023	11.7	47	30	2,047	15.4	71	30	2,054	14.7	68	29	2,021	8.5	57
750----	30	2,560	14.3	30	30	2,587	10.7	59	30	2,585	14.7	64	30	2,568	7.9	48	30	2,598	12.8	65	30	2,601	12.0	66	29	2,560	6.2	52
700----	30	3,133	9.2	35	30	3,154	7.5	53	29	3,159	11.0	64	30	3,125	4.1	48	30	3,170	9.8	57	30	3,174	9.0	59	29	3,116	3.5	48
650----	30	3,744	4.2	36	30	3,768	4.2	49	29	3,778	6.8	67	30	3,726	0.1	43	30	3,789	6.6	53	30	3,789	6.0	53	29	3,720	0.6	41
600----	29	4,389	- 0.2	33	30	4,408	0.4	49	29	4,427	2.4	66	30	4,360	- 3.7	41	28	4,435	3.0	53	30	4,437	2.4	50	29	4,352	- 2.7	34
550----	29	5,080	- 5.0		30	5,106	- 3.8	48	29	5,129	- 1.9	59	30	5,043	- 8.2	39	28	5,139	- 1.0	46	30	5,139	- 1.7	48	29	5,043	- 6.8	33
500----	29	5,821	-10.2		30	5,848	- 7.8	34	28	5,879	- 6.0	48	30	5,775	-13.0	37	28	5,890	- 5.5	45	30	5,887	- 6.2	42	29	5,775	-11.3	
450----	29	6,632	-16.0		30	6,668	-13.2		28	6,704	-10.8	37	30	6,572	-18.5		28	6,718	-10.4	39	30	6,708	-11.3	38	29	6,581	-16.7	
400----	29	7,503	-22.2		30	7,547	-19.6		27	7,594	-16.6		30	7,438	-24.8	38	28	7,607	-16.5	35	30	7,599	-17.2	37	28	7,445	-23.0	33
350----	29	8,471	-29.6		30	8,524	-26.7	37	26	8,584	-23.2	38	30	8,394	-32.2	38	27	8,596	-23.8		30	8,586	-24.0	35	28	8,409	-29.9	
300----	29	9,552	-38.0		30	9,619	-34.7	41	24	9,701	-31.3		30	9,463	-40.4		27	9,702	-32.3		30	9,693	-32.4		28	9,388	-37.9	
250----	29	10,786	-46.2		30	10,869	-43.5		24	10,965	-41.3		30	10,682	-49.0		27	10,961	-42.6		29	10,953	-42.1		28	10,721	-46.2	
200----	29	12,242	-53.8		30	12,336	-53.7		23	12,441	-54.0		28	12,125	-54.7		26	12,425	-55.5		29	12,423	-54.1		25	12,172	-53.8	
175----	28	13,096	-57.2		30	13,184	-59.0		23	13,284	-61.0		27	12,983	-56.3		24	13,264	-62.3		28	13,265	-60.6		25	13,022	-56.7	
150----	26	14,069	-60.8		30	14,140	-64.0		22	14,223	-68.4		26	13,963	-58.5		24	14,198	-69.6		28	14,210	-66.8		24	13,983	-59.5	
125----	23	15,206	-64.3		27	15,238	-67.9		15	15,294	-75.2		21	15,085	-60.4		11	15,267	-76.1		24	15,297	-71.2		19	15,100	-60.6	
100----	17	16,585	-65.0		25	16,577	-68.4		9	16,578	-78.8		16	16,468	-59.7						21	16,603	-71.7		14	16,498	-60.6	
80-----	13	17,975	-63.1		17	17,935	-65.8		7	17,860	-73.2		11	17,897	-58.6						16	17,952	-66.8		8	17,910	-58.7	
60-----	9	19,758	-59.6		7	19,676	-61.1														7	19,727	-61.0					
50-----	6	20,901	-57.8																									

Standard pressure surface (mb)	NASHVILLE, TENN (996 MB.)				NORTH PLATTE, NEBR. (919 MB.)				OAKLAND, CALIF. (1013 MB.)				OKLAHOMA CITY, OKLA.. (970 MB.)				OMAHA, NEBR. (981 MB.)				PHOENIX, ARIZ. (970 MB.)				PITTSBURGH, PA. (974 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	177	19.3	86	30	849	15.4	78	30	6	17.4	70	30	381	20.5	79	30	308	17.7	78	29	338	27.7	35	30	382	16.0	81
1,000--	30	137			30	123			30	118	17.0	70	30	124			29	143			29	61			30	152		
950----	30	581	19.7	72	30	572			30	564	18.3	59	30	576	21.5	71	30	591	18.5	62	29	521	30.8	26	30	597	16.3	73
900----	30	1,046	16.6	72	30	1,039	17.2	64	30	1,021	18.5	44	30	1,039	18.9	71	30	1,049	15.8	64	29	1,001	27.3	27	30	1,049	14.2	68
850----	30	1,531	14.2	66	30	1,516	14.8	63	30	1,510	16.6	35	30	1,529	16.5	66	30	1,533	13.9	57	29	1,502	23.2	31	30	1,530	11.9	62
800----	30	2,042	12.1	59	30	2,027	12.2	59	30	2,023	13.6	36	30	2,044	14.3	59	30	2,043	12.4	45	29	2,026	18.6	36	30	2,036	9.3	60
750----	30	2,584	9.5	56	30	2,570	9.4	55	30	2,569	10.0	37	30	2,595	11.5	52	30	2,599	9.6	44	29	2,583	14.1	39	30	2,575	7.3	52
700----	30	3,150	6.6	51	30	3,135	6.0	52	30	3,133	6.3	34	30	3,160	8.5	46	30	3,151	6.4	44	29	3,153	9.7	39	29	3,134	4.4	47
650----	29	3,758	3.0	50	30	3,744	2.2	48	30	3,739	2.5	28	29	3,776	4.5	43	29	3,763	2.6	43	29	3,771	5.2	39	29	3,736	1.1	46
600----	29	4,399	- 0.6	48	30	4,380	- 2.1	45	29	4,374	- 1.7		29	4,412	0.6	38	30	4,398	- 1.3	38	29	4,413	0.9	33	29	4,374	- 2.0	37
550----	28	5,093	- 4.7	43	30	5,067	- 6.8	46	29	5,063	- 6.1		29	5,113	- 3.3	24	30	5,093	- 3.4	35	29	5,109	- 3.7		29	5,059	- 5.7	
500----	26	5,836	- 9.1	41	30	5,803	-11.4	38	29	5,800	-11.2		28	5,858	- 8.1	22	30	5,828	-10.4		29	5,853	- 8.5		29	5,801	-10.3	
450----	26	6,645	-14.3		30	6,605	-17.0	36	29	6,604	-17.0		26	6,676	-12.6		30	6,639	-15.9		29	6,671	-14.1		28	6,601	-15.9	
400----	26	7,528	-20.4	36	30	7,476	-23.2		29	7,473	-23.6	33	28	7,555	-19.9		30	7,510	-22.3		29	7,547	-20.7		27	7,478	-22.4	
350----	26	8,502	-27.7		30	8,439	-30.4		27	8,436	-31.6		26	8,529	-27.3		28	8,475	-29.7		28	8,519	-28.2		27	8,443	-29.7	
300----	26	9,591	-35.6		29	9,515	-38.6		27	9,508	-39.5		26	9,621	-35.3		28	9,555	-38.1		28	9,605	-36.2		27	9,525	-37.7	
250----	26	10,834	-45.0		29	10,744	-47.0		27	10,735	-47.6		26	10,865	-44.9		28	10,787	-46.7		28	10,846	-44.5		27	10,757	-46.7	
200----	26	12,292	-54.8		28	12,201	-52.7		27	12,186	-53.7		25	12,327	-52.6		27	12,245	-53.9		28	12,305	-52.8		27	12,207	-55.2	
175----	26	13,136	-59.4		24	13,066	-55.8		26	13,037	-56.5		25	13,159	-58.5		27	13,095	-57.5		28	13,153	-58.1		26	13,049	-58.0	
150----	26	14,090	-64.1		23	14,042	-59.5		25	14,007	-59.6		24	14,135	-60.2		26	14,063	-60.2		28	14,111	-62.1		24	14,029	-60.9	
125----	24	15,192	-67.2		21	15,174	-61.9		24	15,140	-62.4		21	15,221	-67.3		24	15,190	-62.8		22	15,238	-67.6		23	15,154	-63.7	
100----	22	16,531	-66.7		13	16,520	-62.0		23	16,522	-62.2		19	16,585	-67.7		21	16,564	-63.6		22	16,567	-67.8		19	16,533	-63.8	
80-----	17	17,888	-64.9		6	17,904	-62.2		15	17,914	-61.6		14	17,998	-64.7		16	17,923	-62.5		20	17,910	-65.6		11	17,880	-61.7	
60-----	5	19,646	-60.2										8	19,948	-60.4		9	19,690	-58.3		13	19,698	-60.8					

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

SEPTEMBER 1950

Standard pressure surface (mb.)	PORTLAND, MAINE. (1015 MB.)				RAPID CITY, S. DAK. (905 MB.)				ST. CLOUD, MINN. (980 MB.)				SAN ANTONIO, TEX. (986 MB.)				SAN JUAN, P. R. (1013 MB.)				SANTA MARIA, CALIF. (1005 MB.)				S.STE. MARIE, MICH. (992 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	20	10.5	92	30	980	13.9	66	30	317	14.6	71	30	240	25.5	67	30	19	26.0	88	30	71	15.5	86	30	221	10.3	90
1,000--	30	149	13.5	73	30	121			30	144			30	110			30	130	25.6	85	30	115	15.0	86	30	153		
950----	30	581	12.2	66	30	567			30	588	15.9	62	30	570	24.9	65	30	589	22.9	81	30	563	17.6	67	30	588	11.8	72
900----	30	1,032	9.8	65	30	1,027	15.0	60	30	1,038	14.0	62	30	1,038	22.0	68	30	1,052	20.1	78	30	1,016	19.4	43	30	1,035	10.1	66
850----	30	1,506	8.8	50	30	1,511	14.1	54	30	1,519	12.1	55	30	1,532	18.7	70	30	1,544	17.4	74	30	1,506	17.7	36	30	1,509	8.1	61
800----	30	2,006	6.8	52	30	2,020	11.0	57	30	2,025	10.1	46	30	2,051	15.5	68	30	2,060	14.7	69	30	2,021	14.5	35	30	2,008	6.2	52
750----	30	2,543	4.8	45	30	2,565	8.0	55	30	2,568	7.6	44	30	2,602	12.7	60	30	2,610	12.1	58	30	2,571	11.1	32	30	2,541	3.8	46
700----	30	3,094	2.0	43	30	3,122	4.9	49	30	3,125	4.4	42	30	3,172	9.6	54	30	3,180	9.4	48	30	3,135	8.0	28	30	3,093	1.5	41
650----	30	3,692	- 1.3	39	30	3,728	1.1	41	30	3,727	0.9	41	30	3,789	5.9	55	30	3,798	6.1	42	30	3,747	4.0	28	30	3,694	- 1.7	41
600----	30	4,322	- 4.8	35	30	4,361	- 3.2	43	30	4,363	- 3.1	38	30	4,435	2.3	52	30	4,444	2.5	43	30	4,388	- 0.2		30	4,320	- 5.0	41
550----	30	5,005	- 8.7		30	5,051	- 7.6	42	30	5,050	- 7.3	37	30	5,136	- 1.7	49	30	5,147	- 1.7	43	30	5,079	- 4.9		30	5,005	- 9.1	42
500----	30	5,734	-13.1		30	5,780	-12.3	39	30	5,783	-11.9	36	30	5,885	- 8.3	41	30	5,894	- 6.2	44	30	5,820	-10.0	28	30	5,731	-13.7	40
450----	30	6,535	-18.1		30	6,582	-17.9	36	30	6,584	-17.3	34	30	6,709	-11.4	32	30	6,714	-11.4	44	30	6,629	-15.9		30	6,530	-19.0	36
400----	30	7,400	-24.2		30	7,447	-24.1	35	30	7,454	-23.6	31	30	7,595	-17.3		29	7,602	-17.6	43	30	7,500	-22.8		30	7,392	-25.5	34
350----	30	8,359	-31.2		30	8,408	-30.9		30	8,416	-30.6		29	8,580	-24.4		29	8,587	-24.9	40	30	8,465	-30.0		30	8,345	-32.8	
300----	28	9,439	-39.1		29	9,476	-39.0		30	9,493	-38.8		29	9,685	-32.6		29	9,689	-33.3	38	30	9,545	-38.0		30	9,413	-40.7	
250----	27	10,664	-47.1		28	10,702	-47.8		30	10,719	-47.8		29	10,945	-42.0		29	10,943	-43.5		30	10,777	-46.2		30	10,630	-48.9	
200----	24	12,128	-54.1		25	12,163	-53.0		30	12,170	-53.9		28	12,418	-53.5		28	12,404	-55.8		30	12,235	-53.7		28	12,071	-55.1	
175----	23	12,973	-56.8		23	13,021	-54.4		30	13,023	-55.6		26	13,265	-59.3		28	13,241	-62.5		30	13,086	-57.2		28	12,920	-56.2	
150----	20	13,922	-59.0		17	14,038	-57.3		29	13,998	-57.2		25	14,214	-65.2		28	14,177	-68.7		28	14,053	-60.5		26	13,917	-58.1	
125----	16	15,055	-61.0		13	15,215	-60.6		25	15,158	-58.9		24	15,308	-71.0		21	15,268	-73.0		27	15,178	-64.0		21	15,051	-60.0	
100----	12	16,450	-60.9		9	16,638	-61.6		23	16,559	-58.7		19	16,615	-71.6		13	16,559	-73.8		20	16,539	-64.2		17	16,424	-59.4	
80-----	11	17,825	-59.6		5	18,031	-61.3		15	17,957	-57.3		17	17,948	-67.7		9	17,875	-71.6		14	17,914	-62.2		12	17,824	-58.8	
60-----													11	19,713	-62.4													

Standard pressure surface (mb.)	SPOKANE, WASH. (932 MB.)				SWAN ISLAND, W. I. (1011 MB.)				TACUBAYA, MEXICO (774 MB.)				TAMPA, FLA. (1012 MB.)				TATOOSH ISLAND, WASH. (1014 MB.)				TOLEDO, OHIO (995 MB.)				WASHINGTON, D. C. (1016 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	722	18.4	39	30	10	26.8	85	30	2,306	16.5	72	30	9	24.6	85	30	31	12.2	89	30	191	15.8	85	30	25	18.8	81
1,000--	30	106			30	107	26.6	83	30	58			30	117	24.7	79	30	145	12.3	84	30	151			30	161	18.5	79
950----	30	555			30	569	23.8	80	30	520			30	570	22.6	76	30	581	13.2	84	30	595	16.0	67	30	603	16.3	76
900----	30	1,019	19.4	30	30	1,032	21.1	76	30	998			30	1,038	19.9	73	30	1,030	12.2	59	30	1,047	13.3	67	30	1,059	13.8	75
850----	30	1,507	15.2	34	30	1,526	18.4	72	30	1,494			30	1,529	17.0	71	30	1,507	10.4	51	30	1,527	11.4	60	30	1,539	11.6	73
800----	30	2,016	10.7	39	30	2,044	15.4	69	30	2,022			30	2,044	14.3	65	30	2,010	7.8	47	30	2,031	9.3	56	30	2,045	9.4	67
750----	30	2,555	6.5	40	30	2,599	12.3	66	30	2,576	14.9	71	30	2,589	12.0	55	30	2,546	4.7	45	30	2,572	7.1	52	30	2,587	7.0	63
700----	30	3,111	2.5	43	29	3,165	9.2	65	30	3,154	10.9	74	30	3,164	9.3	48	30	3,098	1.6	39	30	3,130	4.1	54	30	3,144	5.2	52
650----	30	3,710	- 1.5	40	29	3,786	5.8	62	30	3,774	6.7	79	29	3,779	6.0	43	30	3,693	- 1.9	35	30	3,735	0.9	49	30	3,754	2.1	47
600----	30	4,339	- 5.3	36	29	4,428	1.8	61	30	4,423	2.4	81	29	4,427	2.4	43	30	4,324	- 5.8	32	30	4,369	- 2.7	43	30	4,388	- 1.6	45
550----	30	5,018	- 9.9	37	29	5,130	- 2.2	56	30	5,125	- 1.9	78	28	5,132	- 1.5	36	30	5,002	- 9.8	31	30	5,059	- 6.7	40	29	5,082	- 5.4	41
500----	30	5,745	-14.8	34	29	5,876	- 6.4	53	30	5,876	- 6.0	67	27	5,887	- 6.0		30	5,729	-14.6	32	30	5,792	-11.1	38	29	5,822	- 9.8	37
450----	30	6,533	-19.8		29	6,700	-11.3	48	29	6,702	-10.5	53	25	6,714	-11.6		30	6,518	-20.3	34	30	6,599	-16.5	38	28	6,630	-15.4	
400----	30	7,396	-26.7		29	7,587	-16.8	40	29	7,593	-16.3	49	25	7,601	-17.7		30	7,380	-26.3	33	30	7,469	-22.7	38	28	7,504	-21.6	37
350----	30	8,345	-34.2		29	8,576	-23.7	34	29	8,583	-23.4	43	25	8,585	-24.7		30	8,330	-33.8		30	8,434	-30.0		27	8,469	-28.9	
300----	30	9,405	-41.8		29	9,683	-32.3		29	9,692	-32.0	40	24	9,688	-32.9		30	9,392	-41.7		29	9,508	-38.4		27	9,553	-36.6	
250----	30	10,620	-48.9		29	10,943	-42.6		28	10,953	-42.3		24	10,945	-42.9		30	10,607	-49.3		27	10,734	-47.2		26	10,802	-45.7	
200----	30	12,063	-54.7		29	12,411	-55.2		27	12,421	-54.7		23	12,410	-54.6		29	12,059	-55.9		27	12,182	-55.2		26	12,258	-54.3	
175----	28	12,911	-55.3		29	13,249	-62.0		25	13,263	-61.7		21	13,249	-60.6		27	12,909	-57.0		25	13,031	-58.4		26	13,105	-58.0	
150----	26	13,902	-56.8		21	14,180	-69.4		24	14,203	-68.7		21	14,194	-66.2		26	13,880	-57.3		21	13,990	-60.4		24	14,061	-61.3	
125----	24	15,059	-58.1		14	15,245	-76.6		15	15,266	-75.5		19	15,279	-70.4		23	15,043	-58.2		19	15,129	-63.4		19	15,143	-62.8	
100----	19	16,468	-58.1		9	16,513	-77.5		10	16,554	-78.6		17	16,598	-70.7		18	16,459	-57.9		14	16,486	-62.9		19	16,513	-63.4	
80-----	11	17,899	-57.5		5	17,816	-72.0		5	17,863	-74.0		12	17,939	-66.1		13	17,882	-56.5						18	17,882	-61.9	
60-----													6	19,717	-61.6										11	19,681	-58.3	
50-----																									8	20,844	-56.5	
40-----																									6	22,258	-55.0	

Note: All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

Table 21

SEPTEMBER 1950

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	136	1.9	30	205	1.6	29	39	0.5	30	17	1.4	28	221	1.4	30	301	2.8	30	100	3.9	28	305	1.3	30	210	1.1	29	128	1.2	28	297	0.3	30	202	1.4
500	--	---	---	--	---	---	29	43	1.0	--	---	---	--	---	---	--	---	---	30	104	4.4	28	292	1.8	30	222	2.7	28	113	1.7	28	309	.5	--	---	---
1,000	30	147	2.6	--	---	---	28	61	.7	--	---	---	28	215	1.8	30	299	2.7	30	98	2.7	26	287	2.6	26	271	3.8	26	123	1.2	28	297	.7	--	---	---
1,500	30	166	2.2	--	---	---	26	260	.4	30	11	1.7	27	224	3.2	30	299	1.7	27	90	.1	20	269	2.8	21	282	5.6	24	45	.6	26	266	1.5	30	202	1.2
2,000	29	212	2.0	30	197	2.0	25	294	2.2	29	291	1.1	24	244	3.1	29	289	.9	22	330	1.3	19	267	3.5	17	288	7.2	21	309	1.5	23	259	1.4	30	207	.9
2,500	26	234	2.7	30	212	2.5	24	285	2.7	27	265	3.3	23	249	4.4	29	273	1.4	20	315	1.6	16	273	4.3	16	290	7.4	19	285	2.2	21	268	1.6	30	239	1.7
3,000	22	271	2.8	30	240	3.0	20	274	2.5	24	260	4.7	23	255	3.9	29	269	2.8	19	306	2.2	16	280	5.1	13	297	8.6	18	253	2.6	16	334	2.0	30	241	3.1
4,000	22	281	4.5	29	259	5.5	12	255	5.0	18	257	6.5	19	266	5.7	27	267	4.1	12	302	2.5	12	282	3.9				16	240	4.3	13	320	4.1	28	241	5.2
5,000	18	277	6.5	27	262	8.4				17	246	6.1	15	282	4.5	25	265	5.1				10	269	4.6				14	250	4.0	11	315	4.8	26	247	6.9
6,000	16	280	8.0	20	269	11.5				15	241	6.9	14	280	5.1	23	269	5.4										13	253	6.0	10	310	4.8	21	251	7.9
8,000	13	283	13.8	17	264	17.9							11	308	6.1	14	268	8.0										11	265	8.6				18	261	11.5
10,000	11	281	17.6	10	266	24.5																												18	261	16.6
																																		13	272	18.7
																																		11	276	13.4

Altitude (meters) m.s.l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	234	2.3	30	265	2.3	29	42	0.8	30	292	0.8	27	78	2.6	29	95	0.4	30	178	1.0	27	38	0.4	30	314	1.3	29	111	2.6	29	14	1.7	29	328	0.3
500	--	---	---	--	---	---	29	10	1.4	--	---	---	26	89	2.8	29	54	.8	--	---	---	27	32	1.0	30	322	1.4	28	120	2.7	27	42	1.4	29	189	.5
1,000	--	---	---	--	---	---	28	340	1.0	30	289	1.4	22	142	.5	27	332	.8	30	195	1.6	26	319	.9	30	321	1.4	28	135	1.9	24	17	2.2	29	191	1.1
1,500	--	---	---	30	265	2.5	27	264	1.5	30	281	2.3	20	276	1.6	25	297	1.8	30	205	2.8	20	30	.4	29	241	1.0	28	180	.4	16	9	4.1	27	213	1.4
2,000	30	234	2.3	30	273	2.7	24	287	3.6	30	269	2.9	19	269	2.7	24	300	2.0	30	204	4.1	15	311	.6	26	182	1.8	23	246	.5	11	310	4.5	24	216	1.5
2,500	30	229	2.5	30	237	3.5	23	275	4.4	27	266	4.5	14	286	4.5	21	317	2.6	29	210	4.6	13	360	1.2	26	205	1.8	21	307	.2				23	242	2.3
3,000	30	226	3.6	30	231	4.6	21	267	5.5	24	262	4.9	14	277	5.1	20	323	2.9	28	215	5.0	12	42	1.0	25	216	1.9	20	158	1.2				21	281	3.7
4,000	24	241	4.3	29	229	6.0	13	265	7.0	23	267	5.9	12	253	5.1	15	309	5.3	28	233	6.6	10	321	2.8	25	252	2.4	16	190	2.2				15	295	4.9
5,000	16	249	6.3	22	240	5.7	10	270	10.1	16	258	6.2	11	258	6.2	14	313	6.2	28	243	7.7				24	276	3.1	12	139	3.1				11	301	6.2
6,000	13	268	7.4	20	247	5.5				15	279	5.7	10	266	7.3	11	324	8.1	28	252	11.4				23	296	4.7	11	146	3.4						
8,000				11	295	6.4													21	258	16.2				20	298	3.4									
10,000																			12	261	18.9				12	252	.5									

Altitude (meters) m.s.l.	New York, N.Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	26	310	1.0	29	279	4.4	30	133	2.6	30	127	0.8	30	265	0.4	28	156	1.1	27	195	1.1	29	114	0.3	30	86	1.6	29	261	3.6	27	280	1.1	29	302	1.6
500	24	301	2.5	29	282	3.6	30	131	2.8	30	143	1.2	30	225	.7	--	---	----	27	206	1.7	29	156	.3	30	89	1.4	29	277	2.2	27	285	2.1	29	285	.9
1,000	22	310	7.8	28	284	1.8	28	139	2.6	28	167	1.7	30	221	1.8	28	156	1.1	27	222	2.6	24	177	.8	30	105	1.1	27	267	.7	25	272	1.5	27	246	.9
1,500	19	304	5.5	27	299	1.7	25	166	1.7	25	193	2.5	30	210	2.1	28	144	.8	25	244	3.3	22	151	1.3	30	125	1.1	26	274	1.1	20	283	3.3	26	233	1.0
2,000	17	312	5.6	26	294	2.0	21	184	1.3	24	227	2.0	29	207	2.9	26	211	2.3	22	256	4.2	19	193	1.2	30	225	.7	25	251	1.7	18	294	5.8	24	219	1.7
2,500	12	314	3.7	26	303	2.3	20	281	2.3	24	247	2.9	29	217	4.3	23	234	4.0	21	266	4.7	17	235	1.4	30	259	.5	25	245	3.2	16	288	5.9	24	218	2.0
3,000	10	316	4.2	25	301	2.5	19	302	4.0	19	307	2.1	27	226	4.6	21	239	4.9	20	282	5.9	16	313	2.2	28	268	1.1	25	251	4.6	12	291	7.1	23	242	2.5
4,000				25	287	5.2	18	283	4.0	17	341	2.9	26	242	5.1	19	246	4.5	17	292	7.7	14	325	3.1	24	288	3.1	23	250	7.3				23	261	3.3
5,000				25	284	6.8	15	283	5.3	15	332	2.7	25	249	5.7	17	240	5.7	15	299	8.1	12	312	5.1	19	290	3.5	22	255	9.2				22	274	2.9
6,000				24	278	8.9	10	281	7.3	14	314	3.5	23	258	9.3	16	254	5.5	13	307	10.7	11	298	7.6	18	282	5.5	22	257	11.8				20	285	4.6
8,000				16	282	6.8				12	343	1.7	16	266	12.9	12	256	10.0							12	286	7.7	20	254	17.1				14	277	6.8
10,000				10	262	10.8																						16	250	21.0				13	264	5.1
12,000																												10	254	15.2						

Altitude (meters) m.s.l.	Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	223	1.2	25	348	0.7
500	--	---	---	25	322	1.6
1,000	30	226	1.0	23	307	2.5
1,500	30	250	1.3	19	309	5.0
2,000	29	247	2.2	17	319	5.0
2,500	27	240	1.7	15	305	6.3
3,000	27	268	2.3	14	297	6.7
4,000	26	291	2.6			
5,000	20	303	3.4			
6,000	20	324	3.0			
8,000	14	277	1.2			

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

Table 22 — SEPTEMBER 1950

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrwood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			International Falls, Minn. (358 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	122	2.0	30	118	3.3	29	71	0.8	30	102	2.7	30	82	1.7	30	236	1.5	30	54	0.8	30	68	1.2	30	122	1.1	30	47	1.6	30	347	0.9	30	178	0.8
500	--	---	----	--	---	----	--	---	----	30	105	6.9	29	70	3.6	30	261	3.5	29	115	2.6	30	105	1.7	--	---	----	29	36	2.1	30	45	1.4	30	217	2.5
1,000	--	---	----	30	131	6.0	29	263	1.1	30	89	4.7	29	72	3.7	30	279	3.8	28	123	1.9	30	88	1.8	--	---	----	29	32	1.3	30	5	.8	30	253	5.0
1,500	--	---	----	30	145	5.0	29	271	2.8	30	63	2.5	29	71	3.8	30	280	4.7	28	117	1.5	29	42	1.0	30	136	1.0	30	346	1.1	30	332	1.9	29	270	5.6
2,000	30	178	1.5	30	165	2.5	29	261	3.7	30	30	1.3	29	64	4.0	30	285	5.7	28	118	1.6	29	351	.8	30	179	1.6	30	295	1.4	30	311	2.3	29	277	5.7
2,500	30	222	1.6	30	209	1.9	29	256	4.2	30	359	2.1	30	49	2.3	30	279	6.8	28	140	.9	29	11	.9	30	226	2.5	29	276	2.0	29	314	2.0	29	284	7.0
3,000	30	243	2.6	30	264	2.2	28	263	6.1	30	346	2.4	30	18	1.8	30	279	8.9	29	199	1.3	29	356	1.3	30	236	3.5	29	265	3.1	29	292	2.8	28	290	7.8
4,000	29	258	4.7	30	285	4.4	27	262	7.3	29	328	1.9	30	324	2.6	30	279	10.9	29	246	2.7	30	320	2.6	30	246	5.0	30	270	3.6	28	274	4.1	28	291	9.0
5,000	29	253	6.7	30	283	5.4	27	255	9.1	29	306	1.8	30	281	4.0	30	277	12.6	29	254	4.4	30	310	3.7	30	244	6.6	30	270	4.9	28	266	6.0	28	286	9.5
6,000	29	262	8.4	30	283	6.4	26	258	9.0	27	281	1.6	30	286	4.8	30	274	13.8	28	256	6.5	30	288	4.0	29	248	7.5	30	265	7.1	28	273	8.1	26	287	10.7
8,000	29	258	13.2	30	266	9.7	25	256	10.9	27	276	3.1	30	284	7.6	28	281	16.4	28	255	8.1	30	273	8.5	29	245	11.7	30	257	10.9	28	269	12.1	22	280	12.0
10,000	24	254	14.5	28	267	14.4	24	263	12.8	25	291	5.6	30	294	9.5	25	278	23.4	28	261	11.3	30	260	13.9	21	250	12.7	28	263	13.5	26	281	14.5	19	280	14.1
12,000	16	258	11.3	26	269	16.9	21	258	10.6	24	309	7.6	29	287	9.2	19	274	26.9	28	278	12.6	25	255	16.3	14	253	4.8	28	267	17.7	24	285	15.6			
14,000	12	269	10.4	24	265	12.3	16	253	10.2	25	322	6.6	24	297	10.1	15	268	20.9	27	283	11.8	22	270	20.8	13	251	6.1	25	274	13.9	21	291	9.3			
16,000	10	264	4.0	19	236	5.5	10	256	9.6	17	9	2.0	12	300	4.4				22	320	4.6	15	261	8.4				18	283	8.9	12	290	5.2			
18,000				13	229	2.1													18	321	2.5															
20,000																			11	93	4.1															

Altitude (meters) m.s.l.	Little Rock, Ark. (80 m.)			Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	356	0.5	30	323	2.7	30	152	2.1	29	332	0.5	30	96	0.6	30	284	2.7	30	90	2.7	29	116	0.8	30	91	3.1	30	127	1.4	30	114	0.6	30	276	2.1
500	30	70	3.2	30	321	3.3	30	137	4.4	29	277	2.8	30	124	1.9	30	295	5.5	26	85	3.3	--	---	----	30	103	5.7	29	105	4.4	29	134	1.8	30	338	3.3
1,000	29	72	1.9	30	316	4.2	30	135	4.0	29	281	3.7	30	156	2.0	30	295	4.8	26	123	3.3	30	117	.9	30	115	4.9	29	98	4.8	29	197	2.8	30	344	3.5
1,500	29	90	.2	30	313	3.1	30	131	4.0	29	273	4.8	30	192	2.4	30	297	3.4	27	193	1.9	30	162	2.1	30	114	2.4	30	98	4.0	29	241	3.9	30	11	3.1
2,000	29	265	1.7	30	297	1.5	30	131	2.8	29	272	6.2	29	226	2.5	30	301	2.3	27	231	1.5	30	205	2.7	30	123	.4	30	102	3.4	28	258	4.0	29	13	2.3
2,500	30	287	1.2	30	246	1.2	30	145	2.5	29	271	7.2	29	241	2.9	30	314	1.5	28	287	1.7	30	225	3.5	30	315	1.3	30	94	2.7	28	272	4.4	29	348	2.3
3,000	30	304	1.6	30	238	1.9	30	153	2.6	29	277	8.2	29	242	2.9	30	307	1.7	29	296	3.2	30	241	3.3	30	330	1.9	30	94	2.9	29	284	5.1	29	312	3.1
4,000	30	311	4.0	30	253	2.9	30	156	2.3	29	274	10.1	27	266	3.6	30	305	3.1	28	288	5.4	30	264	6.5	30	322	3.9	30	79	2.2	29	288	6.8	29	286	4.7
5,000	30	316	4.8	30	273	3.9	30	139	1.8	28	277	11.8	27	266	5.0	29	291	5.9	28	285	6.1	30	270	9.0	30	309	5.2	30	87	1.7	29	285	8.6	29	281	6.2
6,000	29	293	6.9	29	271	4.6	30	82	.7	27	281	14.5	25	265	7.2	29	284	7.2	28	284	7.6	29	257	11.2	30	298	5.6	30	67	.9	29	284	10.3	29	271	8.4
8,000	29	275	10.5	28	272	4.4	30	307	1.5	25	285	17.5	25	278	11.2	27	284	9.3	25	271	12.7	27	254	11.5	30	274	7.8	29	312	1.4	26	280	11.1	29	258	11.0
10,000	29	276	17.1	25	241	4.6	30	287	3.2	21	286	19.2	25	274	18.4	25	271	9.3	25	269	17.9	23	248	10.6	29	272	12.0	29	330	2.6	25	282	13.6	29	252	14.0
12,000	25	265	19.5	19	262	2.9	29	295	4.1	13	286	24.0	22	278	19.5	23	261	12.7	22	259	20.5	22	262	10.9	25	275	13.2	28	340	3.1	22	262	15.8	26	256	13.1
14,000	23	276	17.1	14	236	6.5	28	306	5.7				20	280	14.6	12	268	16.3	21	258	17.2	15	265	12.4	17	281	6.6	26	36	5.6	19	271	13.9	21	251	12.8
16,000	17	258	5.5				22	30	1.8				14	283	9.7				16	259	8.6				15	262	4.6	16	112	3.2	14	264	11.4	17	255	6.6
18,000	12	104	1.0				13	92	7.0										10	265	1.1													12	261	5.9

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	10	0.9	30	156	1.2	30	214	1.9
500	30	293	.8	--	---	----	30	263	2.8
1,000	30	292	1.6	30	153	.5	30	255	1.6
1,500	29	297	4.7	30	270	.3	30	225	1.4
2,000	29	300	5.6	30	314	1.3	30	231	2.3
2,500	29	302	6.8	30	310	1.6	29	245	2.4
3,000	29	306	7.9	30	310	2.5	28	245	2.2
4,000	28	307	8.0	29	311	3.0	28	231	2.7
5,000	26	299	9.3	29	303	1.9	27	227	3.7
6,000	25	292	10.3	28	349	2.4	27	230	3.5
8,000	23	283	14.0	28	22	2.8	26	205	3.2
10,000	19	277	15.2	19	311	3.3	23	202	3.7
12,000	15	270	17.1	12	15	5.8	17	240	3.6
14,000	14	268	19.3	10	17	4.5	13	234	6.2
16,000							10	239	6.0

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°,E = 90°,S = 180°,W = 270°); speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL D... National Summary.

SOLAR RADIATION DATA

Table 30.—Solar radiation intensities, tabulated in langleys. SEPTEMBER 1950

TABLE MOUNTAIN, CALIF.

Date	Sun's zenith distance: A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a.m.	1:30 p.m.
	Air mass: 3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
										Mb.	Mb.
Sept.											
1	----	----	----	1.32	----	----	----	----	----		
10	----	----	----	1.32	----	----	----	----	----		
11	1.05	1.15	1.27	1.40	----	----	----	----	----		
14	----	----	----	1.45	----	----	----	----	----		
16	----	----	----	1.46	----	----	----	----	----		
18	----	----	----	1.42	----	----	----	----	----		
19	----	----	----	1.40	----	----	----	----	----		
20	1.08	1.16	1.27	1.40	----	----	----	----	----		
22	1.06	1.15	1.26	1.39	----	----	----	----	----		
24	1.07	1.16	1.26	1.38	----	----	----	----	----		
27	1.07	1.15	1.26	1.40	----	----	----	----	----		
28	1.12	1.20	1.31	1.45	----	----	----	----	----		
29	----	----	----	1.44	----	----	----	----	----		
30	1.13	1.22	1.33	1.45	----	----	----	----	----		
Averages	1.08	1.17	1.28	1.41	----	----	----	----	----		
Departures	-.03	-.02	-.02	+.01	----	----	----	----	----		

LINCOLN, NEBR.

	Air mass: 4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
										Mb.	Mb.
Sept.											
1	----	----	0.90	1.07	1.33	1.01	0.84	0.69	0.60	14.2	16.5
2	----	----	.83	1.03	1.30	1.06	.88	.75	.67	15.3	17.7
5	----	0.94	1.03	1.18	1.36	1.17	1.01	.90	.79	12.7	12.7
6	----	.86	.99	1.16	1.35	1.17	.99	.86	.73	8.4	11.4
7	----	.79	.92	1.14	1.34	1.14	.99	.86	.75	8.7	13.2
Averages	----	.86	.93	1.12	1.34	1.11	.94	.81	.71	----	----
Departures	----	+.02	-.04	-.02	-.05	-.04	-.03	-.02	-.01	----	----

MADISON, WIS.

	Air mass: 4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
										Mb.	Mb.
Sept.											
4	0.87	0.96	1.08	1.24	1.38	----	----	----	----	10.2	11.0
5	.87	.96	1.03	1.19	1.41	----	----	----	----	9.4	11.0
7	.60	.71	.76	.90	1.12	----	----	----	----	8.4	12.3
15	.76	.84	.99	1.14	1.39	----	----	----	----	10.6	11.4
19	.73	.86	.98	1.13	1.43	----	----	----	----	14.2	15.3
23	.80	.94	1.08	1.28	1.47	----	----	----	----	9.4	6.1
26	.76	.90	1.03	1.19	1.28	----	----	----	----	9.1	9.4
Averages	.77	.88	.99	1.15	1.35	----	----	----	----	----	----
Departures	+.05	+.03	+.01	+.02	-.01	----	----	----	----	----	----

BOSTON, MASS.

(No record during September 1950)

TACUBAYA, D.F., MEXICO

	Air mass: 3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83		
										Mb.	Mb.
Sept.											
4	0.87	0.96	0.98	1.23	----	----	----	----	----	11.3	11.7
9	----	----	----	----	----	1.11	0.85	0.73	0.63	12.4	11.6
11	.29	.52	.66	.96	----	1.24	.96	.83	.68	12.4	12.4
13	----	----	----	.60	----	----	----	----	----	11.9	12.5
14	.58	.66	.88	1.08	----	----	----	----	.61	11.3	13.6
15	----	----	----	.89	----	----	----	----	----	12.1	12.8
18	----	----	----	----	----	.92	.58	.43	----	12.1	12.8
19	.54	.82	.95	1.17	----	----	----	----	----	10.4	10.8
20	.89	1.03	1.25	1.21	----	----	----	----	----	8.9	11.1
21	----	.88	1.04	.93	----	1.26	.99	.86	.80	11.6	10.3
23	----	.88	1.06	1.15	----	----	----	----	----	10.9	12.7
28	.50	.58	.79	1.02	----	----	----	----	----	12.8	12.5
29	----	----	----	.97	----	1.08	.96	----	----	10.7	11.7
Averages	.61	.79	.95	1.02	----	1.12	.87	.71	.68	----	----
Departures	----	----	----	----	----	----	----	----	----	----	----

BLUE HILL, MASS.

	Air mass: 4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
										Mb.	Mb.
Sept.											
6	0.85	0.91	1.07	1.18	----	----	0.85	0.72	0.60	11.2	11.9
7	.73	.82	.97	1.16	----	1.14	.93	.80	.71	12.5	15.0
13	.73	.81	.94	----	----	----	----	----	----	10.2	10.7
16	.73	.85	1.00	1.18	----	----	----	----	----	13.2	12.0
17	.94	1.04	1.17	1.32	----	1.28	1.08	.94	.84	7.7	8.9
18	.82	.91	1.06	1.20	----	1.24	1.11	.99	.86	7.6	9.1
23	----	----	----	----	----	1.25	1.11	.98	----	13.6	7.8
24	.95	1.05	1.20	1.34	----	----	----	----	----	5.6	5.1
25	.96	1.05	1.15	1.29	----	1.32	1.14	1.02	.74	5.4	5.2
Averages	.84	.93	1.07	1.24	----	1.25	1.04	.91	.75	----	----
Departures	+.08	+.06	+.07	+.11	----	+.12	+.11	+.11	+.08	----	----

ALBUQUERQUE, NEW MEXICO

	Air mass: 4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08		
										Mb.	Mb.
Sept.											
1	----	----	----	----	----	0.61	----	----	----	10.2	9.5
2	----	----	0.96	1.16	1.31	----	----	0.87	0.55	7.9	5.4
3	----	----	----	1.16	1.31	----	----	----	----	7.0	5.8
19	----	----	----	----	----	1.21	----	----	----	10.6	10.6
20	0.90	1.01	1.13	1.31	----	1.32	0.65	.67	.99	11.0	4.6
21	----	----	----	1.26	----	----	1.05	----	----	4.4	6.8
22	----	----	----	----	----	----	----	----	.39	8.8	9.8
23	.80	.88	.98	1.20	1.44	1.22	.99	.85	.70	8.2	6.8
24	----	.61	----	----	----	----	----	----	----	6.8	7.3
25	0.75	.86	1.02	1.18	1.44	----	1.11	.97	.88	7.0	4.4
26	.84	.96	1.07	1.19	----	.78	----	.82	.43	5.6	5.2
27	.90	1.02	1.14	1.31	1.54	1.27	1.08	.94	.82	4.8	4.2
28	.85	.97	1.12	1.29	1.49	1.29	1.14	1.02	.92	4.8	4.0
29	.90	1.02	1.17	1.33	----	.93	1.12	.99	.88	5.4	5.8
30	.81	.92	.75	----	----	1.10	----	----	----	5.8	11.4
Averages	.84	.92	1.04	1.24	1.42	1.08	1.02	.89	.73	----	----
Departures	.00	-.03	-.03	+.02	-.06	-.16	-.08	-.09	-.17	----	----

* Extrapolated

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface (langleys).

An explanation of Tables 30 and 33 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

Table 31.—Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during September, 1950

Date	3	4	5	6	7	8	9	Average	10	11	12	13	14	15	16	Average	17	18	19	20	21	22	23	Average
Langleys	20	257	216	382	385	377	331	281	117	29	44	362	95	212	301	166	451	437	55	83	370	49	465	273
Date	24	25	26	27	28	29	30	Average																
Langleys	446	488	229	161	202	81	330	277																

Table 32.—Daily totals and weekly averages of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during September, 1950

Date	3	4	5	6	7	8	9	Average	10	11	12	13	14	15	16	Average	17	18	19	20	21	22	23	Average
Langleys	25	89	81	75	72	91	96	76	86	28	40	89	75	80	81	69	68	67	47	76	91	48	82	68
Date	24	25	26	27	28	29	30	Average																
Langleys	81	74	91	84	91	69	82	82																

Note.—Langley is the unit used to denote one gram calorie per square centimeter.

SOLAR RADIATION DATA

Table 33.--Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. SEPTEMBER 1950

	Honolulu, T.H.	Pearl Harbor, T.H.	Brownsville, Tex.	Gainesville, Fla.	Apalachicola, Fla.	Lake Charles, La.	El Paso, Tex.	Ft. Worth, Tex.	La Jolla, Calif.	Charleston, S.C.	Griffin, Ga.	Phoenix, Ariz.	Riverside, Calif.	Santa Maria, Calif.	Albuquerque, N.M.	Hatteras, N.C.	Oklahoma City, Okla.	Raleigh, N.C.	Oak Ridge, Tenn.	Las Vegas, Nev.	Nashville, Tenn.	Stillwater, Okla.	Fresno, Calif.	Davis, Calif.	Washington, D.C.	Ely, Nev.	Seabrook, N.J.	Indianapolis, Ind.	Grand Lake, Colo.	Salt Lake City, Utah	New York, N.Y.	Sayville, N.Y.	State College, Pa.	Lincoln, Nebr.
1950																																		
September 3--	662	643	615	228	493	252	433	225	121	463	623	635	314	417	576	634	263	531	---	615	456	199	528	439	442	534	269	458	638	628	72	73	292	585
September 4--	620	634	577	214	368	478	---	330	247	409	355	460	330	315	149	572	352	430	361	534	424	266	572	454	455	494	480	667	633	550	437	385	507	612
September 5--	673	589	634	---	350	613	---	318	191	94	354	(532)	442	443	(327)	100	329	381	575	518	582	434	495	472	478	455	514	646	604	528	607	436	290	609
September 6--	658	575	421	---	296	538	---	654	163	93	98	554	250	224	498	190	565	231	505	494	546	446	207	396	474	359	516	601	532	477	551	589	586	610
September 7--	607	542	620	248	260	637	---	542	210	110	66	566	395	134	625	321	639	250	59	248	71	611	289	177	515	364	483	499	491	268	427	541	521	595
September 8--	661	483	516	259	453	622	---	641	398	416	326	627	433	265	598	565	630	271	350	545	159	585	496	414	444	257	515	126	576	397	396	441	383	562
September 9--	620	676	569	380	646	606	---	603	592	(453)	512	629	454	506	628	603	595	292	---	587	149	507	487	407	70	461	350	246	413	285	378	490	204	549
Averages------	643	592	565	266	410	535	---	473	275	291	333	572	374	329	486	426	482	341	370	506	341	435	439	394	411	418	447	463	555	448	410	422	398	589
Departures----	+2	+2	---	-97	---	+19	---	-5	-192	---	---	-39	-114	-122	---	---	+36	---	+12	-44	-50	---	-121	-128	+19	---	+43	---	+59	-18	+46	---	+30	+148
September 10--	612	540	656	501	640	541	(661)	502	535	474	579	632	503	592	538	472	429	273	---	590	267	537	555	432	261	425	225	229	407	495	103	258	217	203
September 11--	635	626	623	470	483	445	647	383	408	567	442	655	490	433	626	460	368	473	400	593	412	272	556	413	341	397	124	413	336	105	39	10	270	242
September 12--	638	602	614	469	503	559	658	513	555	496	529	656	480	566	648	587	179	564	400	588	430	112	561	431	67	525	237	142	419	538	246	346	118	472
September 13--	561	445	572	420	520	482	660	551	550	535	531	656	495	584	641	557	199	435	408	591	366	170	553	478	81	554	79	550	288	553	144	154	53	481
September 14--	630	594	588	420	591	528	637	469	497	566	501	639	512	570	627	484	167	423	337	---	210	263	572	474	218	456	236	279	439	221	78	181	297	518
September 15--	622	571	550	489	600	575	658	581	439	(511)	606	629	423	553	643	450	375	535	457	533	258	165	544	485	452	373	447	494	209	417	337	371	191	237
September 16--	614	496	618	489	584	562	568	399	348	422	579	661	389	501	626	569	283	539	---	546	379	190	415	312	360	329	462	477	441	263	405	511	281	201
Averages------	616	553	600	465	560	527	641	486	476	510	538	647	470	543	621	511	286	463	400	573	332	244	536	432	254	437	258	369	363	370	193	262	204	336
Departures----	-5	-24	---	+58	---	+21	+49	+18	+27	---	---	+58	00	+48	---	---	-104	---	+14	+23	-49	---	+3	-57	-124	---	-55	---	-47	-31	-159	---	-177	-79
September 17--	491	569	566	404	606	256	357	542	531	(458)	207	598	498	566	345	439	505	431	---	569	488	458	319	187	421	416	505	486	506	407	563	558	436	358
September 18--	644	605	515	440	548	291	601	481	571	(468)	427	(447)	518	605	366	553	546	317	501	554	505	381	491	335	394	330	511	526	449	424	425	527	455	298
September 19--	670	636	596	431	504	461	613	80	578	473	455	519	496	594	588	467	345	474	458	514	347	334	539	483	192	(489)	240	255	243	449	82	112	150	374
September 20--	666	652	537	483	603	518	332	525	581	(525)	558	591	490	594	597	434	530	398	464	575	393	450	528	518	178	503	154	288	134	412	55	52	236	139
September 21--	495	481	425	469	579	494	497	286	551	479	464	78	481	(591)	377	526	535	431	112	534	178	464	538	507	94	466	83	338	432	500	374	375	122	82
September 22--	638	665	560	469	611	471	525	540	574	488	390	604	472	568	134	234	527	146	264	568	222	479	522	481	43	376	88	379	396	417	45	49	60	295
September 23--	643	662	552	317	561	533	553	535	441	(496)	524	599	387	438	583	484	542	449	431	532	484	456	490	517	370	429	433	475	348	289	239	332	234	473
Averages------	607	610	536	430	573	433	497	427	547	484	432	491	477	565	427	448	504	378	372	549	374	432	490	477	242	430	288	392	358	414	255	286	242	288
Departures----	+12	+22	---	+33	---	-7	-47	-7	+147	---	---	-61	+22	+15	---	---	+79	---	00	-1	-11	---	-4	-4	-120	---	+23	---	-7	+13	-73	---	-81	-117
September 24--	495	516	329	454	597	558	418	(335)	489	(380)	532	598	450	502	304	446	544	563	541	548	543	504	522	517	288	517	319	---	378	445	252	321	153	518
September 25--	577	648	384	96	424	527	601	406	512	(537)	575	598	447	548	567	171	407	217	454	524	447	302	507	432	228	493	230	---	426	430	377	477	57	478
September 26--	384	538	437	318	279	142	602	449	487	481	549	587	448	565	548	279	292	352	408	520	341	239	522	489	226	511	134	380	292	341	144	213	327	347
September 27--	621	594	379	268	477	283	598	433	442	220	375	582	437	564	538	109	453	291	359	527	117	321	509	495	209	530	278	253	204	393	223	240	274	164
September 28--	540	636	383	259	411	332	590	384	486	268	100	580	455	502	555	223	461	100	162	521	309	399	511	487	111	542	186	183	339	464	183	252	231	96
September 29--	632	590	529	215	228	483	586	(479)	424	144	223	570	434	434	539	281	357	191	158	532	191	337	546	502	251	311	154	443	487	379	191	169	196	338
September 30--	612	542	431	235	167	232	396	274	468	(115)	273	538	430	579	398	396	334	110	315	533	425	311	541	507	173	501	269	343	527	375	263	318	185	363
Averages------	551	580	410	264	369	365	541	394	473	306	375	579	443	528	493	272	407	260	342	529	339	345	522	490	212	486	224	347	379	404	233	284	203	329
Departures----	-17	+17	---	-49	---	+17	+10	+4	+89	---	---	+53	00	+18	---	---	-13	---	+2	+4	-14	---	+57	+25	-128	---	-32	---	-4	+19	-76	---	-124	-31

Accumulated Departures January 1 to September 30 1950

	-224	+455	---	-350	---	---	---	---	---	---	---	---	-3941	---	---	---	---	---	---	---	-1771	---	+12397	-4417	-5642	---	---	---	---	---	-5726	---	-4669	+1295

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Table 33.--Daily totals and weekly averages of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.- Continued

	Upton, N.Y.	Cleveland, Ohio	Newport, R.I.	Put-in-Bay, Ohio	East Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Medford, Oreg.	Amherst, Mass.	Lynn, Mass.	Ithaca, N.Y.	Twin Falls, Idaho	Albany, N.Y.	Lander, Wyo.	E. Lansing, Mich.	Madison, Wis.	Boise, Idaho	Portland, Me.	Toronto, Ontario	Rapid City, S.D.	Ottawa, Ontario	St. Cloud, Minn.	North Head, Wash.	Sault Ste.Marie Mich	Bismarck, N.D.	Caribou, Me.	Great Falls, Mont.	Spokane, Wash.	Seattle (U. of Washington), Wash.	Glasgow, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska	Aklavik, MacKenzie
1950																																		
September 3--	86	569	---	565	156	61	35	607	---	---	451	535	179	615	428	546	480	173	484	---	489	598	158	170	639	511	599	472	227	523	550	295	362	308
September 4--	467	430	---	533	367	399	331	383	---	---	229	486	414	629	496	573	536	225	276	---	136	591	497	592	609	49	576	447	476	547	536	275	340	228
September 5--	---	569	494	630	467	351	281	602	---	---	212	506	242	615	504	585	513	373	499	---	539	585	519	571	619	314	553	563	526	522	443	295	201	180
September 6--	---	588	573	521	555	580	522	472	---	---	594	478	557	464	496	574	417	558	521	---	531	585	496	555	617	486	525	563	551	514	491	155	140	164
September 7--	---	498	566	441	524	580	518	416	464	---	563	438	547	459	445	526	---	588	469	168	553	575	561	530	469	533	539	577	528	562	485	295	176	245
September 8--	441	432	506	383	519	559	513	179	441	---	433	---	481	534	229	388	---	535	290	556	450	506	503	459	297	530	145	531	499	224	525	29	314	293
September 9--	459	349	440	472	421	488	428	521	385	---	490	311	417	307	390	481	---	415	338	207	458	463	224	484	148	448	165	536	451	152	94	222	326	291
Averages------	363	491	516	506	430	431	375	454	---	---	425	459	405	518	427	525	486	409	411	---	451	558	423	480	485	410	443	527	465	435	446	224	265	244
Departures----	+23	---	+87	+69	+26	+41	-1	-53	---	---	+47	-41	+65	+33	+75	+142	-28	+29	+21	---	+73	+110	---	---	---	+36	-7	-10	---	---	+50	-62	+50	+41
September 10--	217	381	295	431	304	237	185	556	110	---	165	306	113	72	162	243	---	272	109	173	406	436	297	382	140	412	469	542	242	266	70	274	195	183
September 11--	16	218	49	236	45	62	19	560	(69)	---	150	542	123	168	217	102	550	124	76	198	304	48	357	131	273	283	288	540	473	252	70	313	279	71
September 12--	334	227	189	322	163	114	91	559	226	---	143	543	446	587	70	105	551	219	77	404	430	71	139	283	435	484	311	527	409	238	94	476	131	109
September 13--	123	140	366	161	360	490	435	550	412	---	113	496	288	316	52	129	486	594	26	417	337	209	191	65	405	557	299	412	133	339	144	464	279	168
September 14--	245	102	188	72	156	198	172	501	(185)	---	274	404	100	359	54	168	545	213	73	323	69	539	382	154	218	456	334	506	249	165	377	400	212	297
September 15--	371	227	401	357	322	282	352	495	183	---	29	---	98	187	218	512	518	377	120	250	64	371	467	359	67	273	301	480	224	327	435	305	218	69
September 16--	476	407	495	415	426	374	383	359	395	---	219	---	516	395	197	355	453	432	389	201	300	182	381	315	362	215	264	507	385	181	320	440	281	71
Averages------	255	243	283	285	254	251	234	512	226	---	156	458	241	298	139	231	517	319	124	281	273	265	316	241	272	383	324	502	302	253	216	382	228	138
Departures----	-39	---	-99	-91	-105	-115	-88	+28	---	---	-184	-14	-71	-94	-122	-111	+27	-42	-192	-39	-83	-84	---	---	---	-2	-78	+1	---	---	-109	+39	+31	-28
September 17--	555	469	555	492	515	565	529	209	465	---	482	---	549	522	428	416	386	590	366	401	501	174	177	450	237	483	547	499	447	385	414	425	211	133
September 18--	534	477	532	481	489	549	482	536	427	---	527	---	507	540	356	346	460	543	383	496	472	280	156	127	539	468	493	491	367	496	457	401	289	106
September 19--	99	190	170	245	88	89	105	500	84	137	110	---	262	397	348	467	396	225	392	394	476	480	294	421	330	116	512	477	162	418	437	350	112	166
September 20--	64	410	87	438	78	164	161	524	95	164	468	---	284	265	385	153	480	450	401	116	476	148	447	212	135	523	527	472	380	516	348	378	165	152
September 21--	409	68	440	86	437	455	400	516	360	413	359	---	361	502	93	75	481	408	147	440	406	135	462	200	519	265	503	453	418	368	406	378	248	242
September 22--	69	363	105	326	135	97	68	466	69	95	86	---	39	444	282	398	417	89	334	459	283	416	141	92	491	457	509	450	379	456	427	381	105	130
September 23--	384	481	451	484	416	521	470	460	348	480	251	---	524	513	455	514	453	462	319	498	367	516	117	299	458	231	514	463	224	451	450	365	141	75
Averages------	302	351	334	365	308	349	316	459	274	258	326	---	361	455	335	338	439	395	335	401	426	307	256	257	387	363	515	472	339	441	420	383	183	143
Departures----	+16	---	-20	+24	-15	-2	+24	+11	---	-46	-27	---	+60	+56	+45	-16	-2	+24	+54	+41	+77	+14	---	---	---	+24	+96	+21	---	---	+84	+64	+13	+1
September 24--	310	79	479	163	457	513	449	446	345	458	147	---	235	518	100	313	417	482	130	482	244	430	41	4	452	351	505	269	65	449	392	237	92	96
September 25--	475	365	510	432	463	540	472	127	407	484	126	---	428	442	372	424	263	525	35	472	401	401	13	207	412	232	288	220	113	436	394	209	151	104
September 26--	203	487	306	481	271	310	249	126	182	274	277	---	104	402	391	400	205	353	312	411	144	403	405	298	448	327	285	343	299	261	367	123	112	152
September 27--	297	259	233	220	292	242	222	476	194	262	304	---	117	527	159	307	557	279	272	489	196	137	330	149	236	282	497	453	239	358	133	77	134	202
September 28--	224	274	301	386	314	280	235	420	187	258	240	---	167	461	179	349	366	271	322	478	243	452	403	115	372	138	416	396	332	409	341	68	76	147
September 29--	146	385	91	438	93	153	157	468	199	282	417	---	283	69	333	190	404	325	304	48	332	56	439	43	168	94	77	423	335	204	280	86	98	197
September 30--	332	379	333	365	297	349	284	475	259	313	406	---	337	306	241	323	381	395	362	124	322	161	341	262	66	301	180	404	377	111	95	103	106	98
Averages------	284	318	322	355	312	341	295	363	253	333	274	---	239	389	254	329	370	376	248	358	269	291	282	154	308	246	321	358	251	318	286	129	110	142
Departures----	-8	---	-16	+13	-27	00	-3	-10	---	+12	-51	---	-43	-16	-21	+24	-6	-10	-50	+27	-41	+13	---	---	---	-55	-25	-11	---	---	-34	-86	-23	+11
Accumulated Departures January 1 to September 30, 1950	---	---	-3444	+5058	-6111	+2422	+2114	---	---	---	---	---	---	---	+784	+4060	---	---	-1400	---	---	---	---	---	---	---	---	---	---	---	---	---	-10500	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

W.B.O., Washington, D. C.---12/29/50---2400

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, September 1950

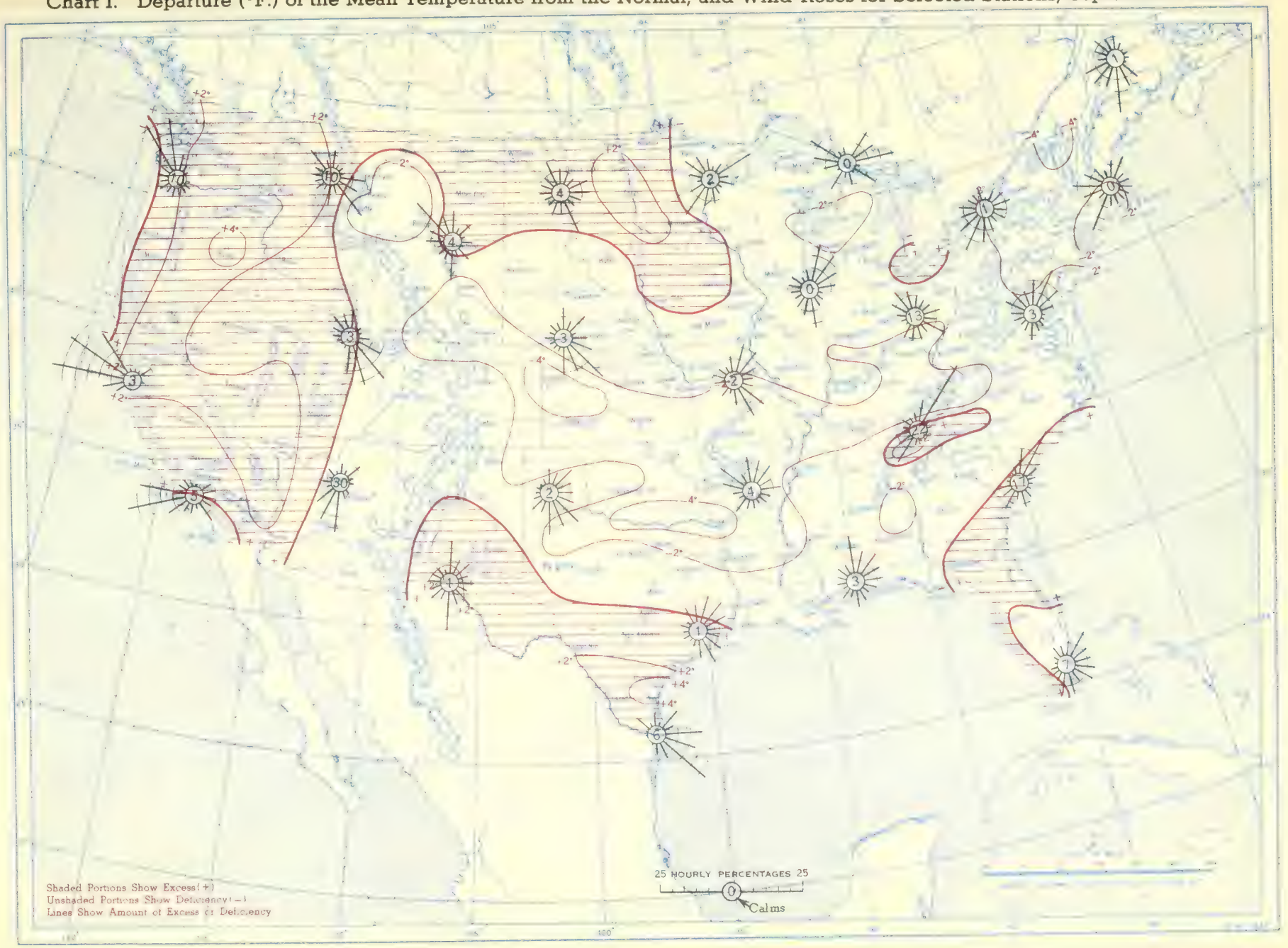
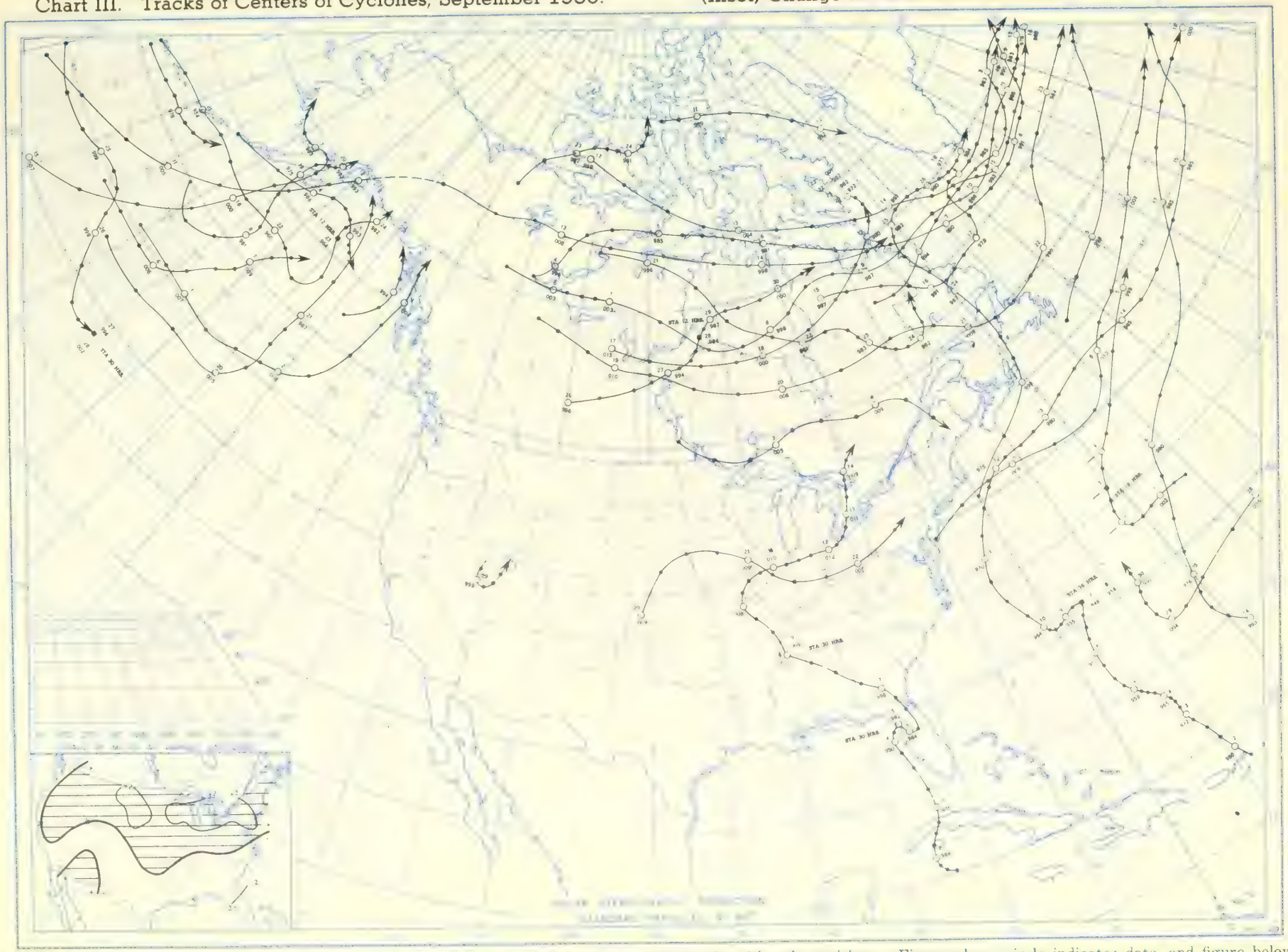


Chart II. Tracks of Centers of Anticyclones, September 1950. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart III. Tracks of Centers of Cyclones, September 1950. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time) Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, September 1950



Chart V. Total Precipitation, Inches, September 1950. (Inset) Departure of Precipitation from Normal

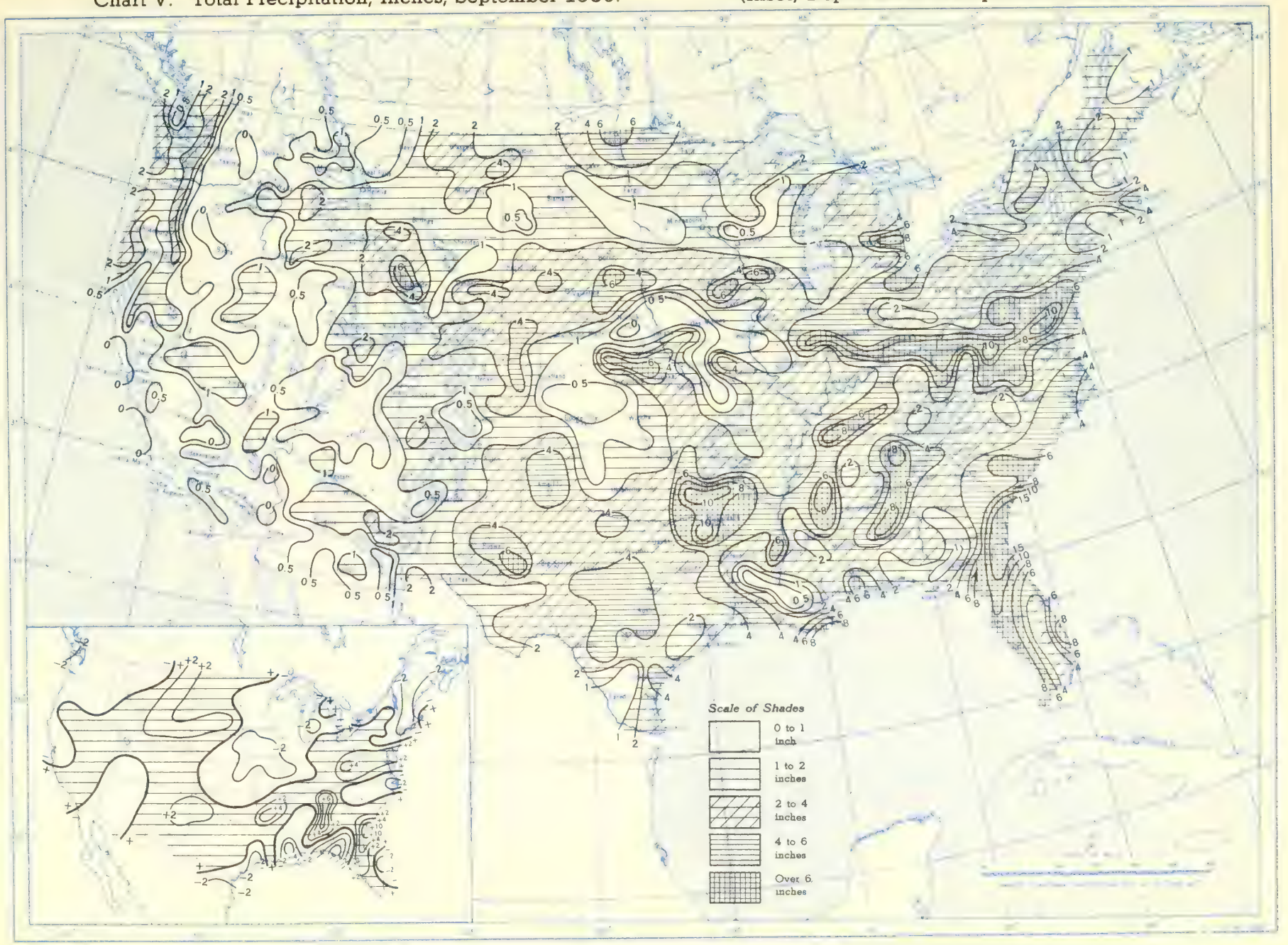
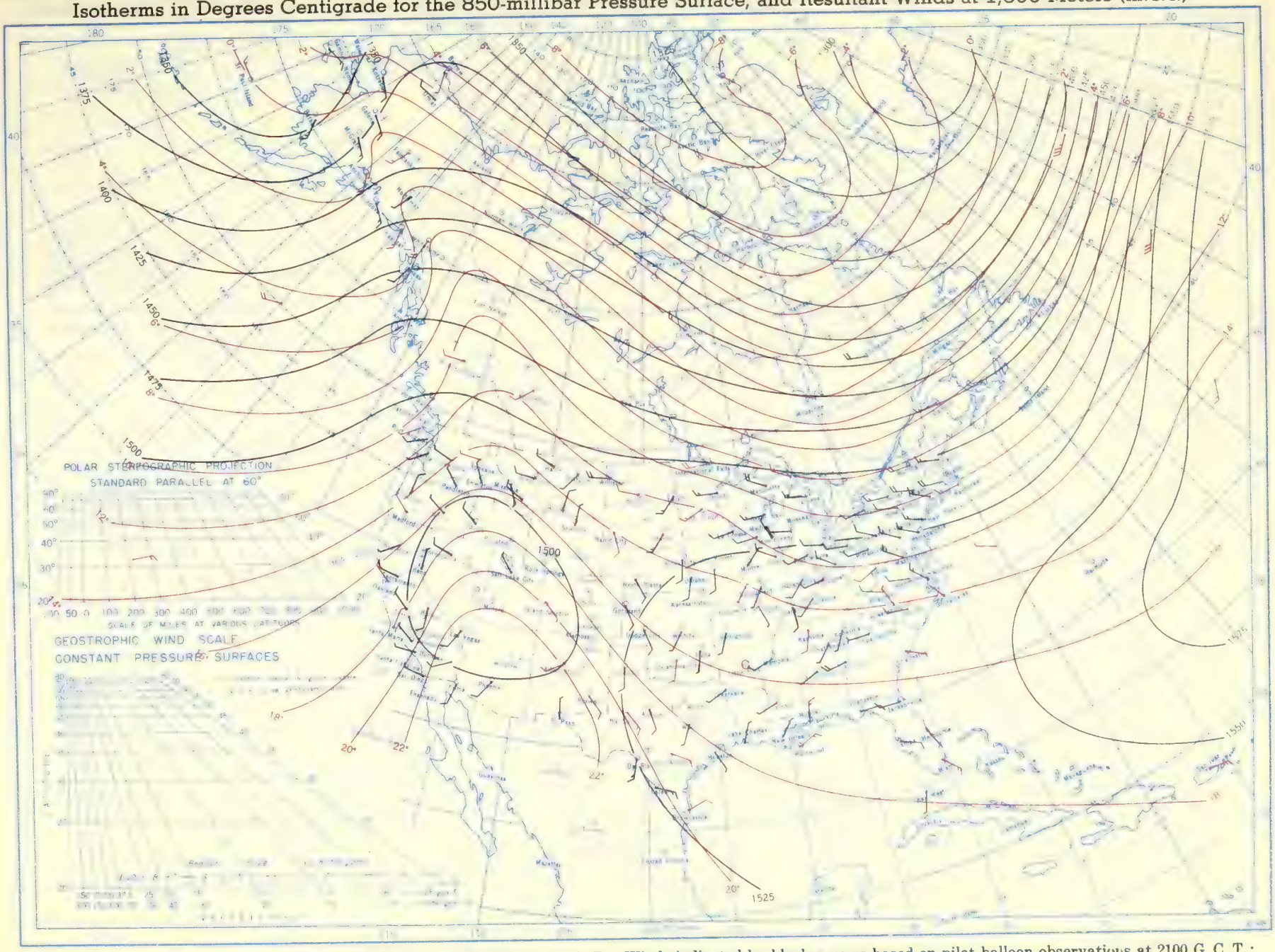


Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., September 1950

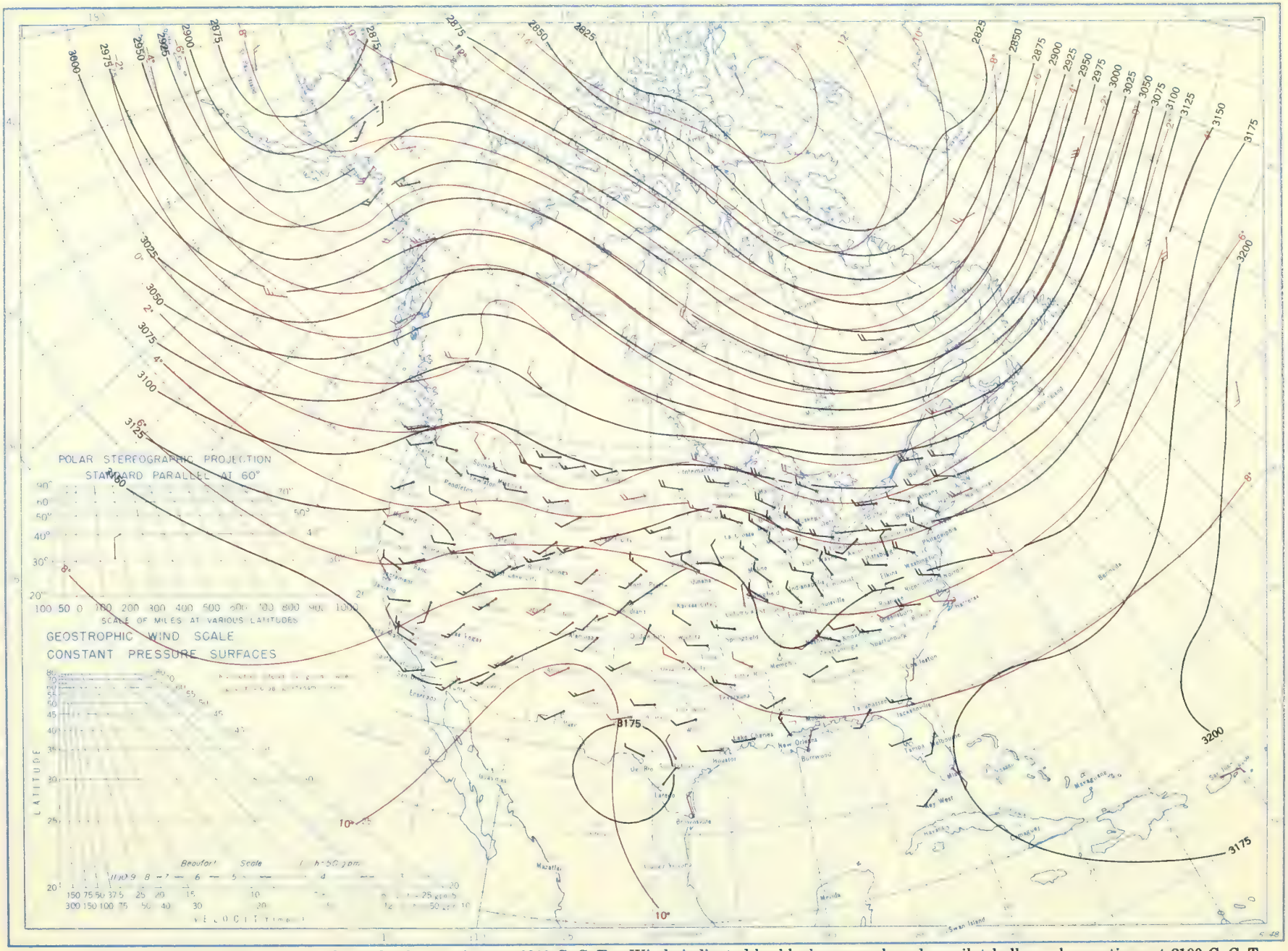


Chart VIII, September 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m. s. l.)



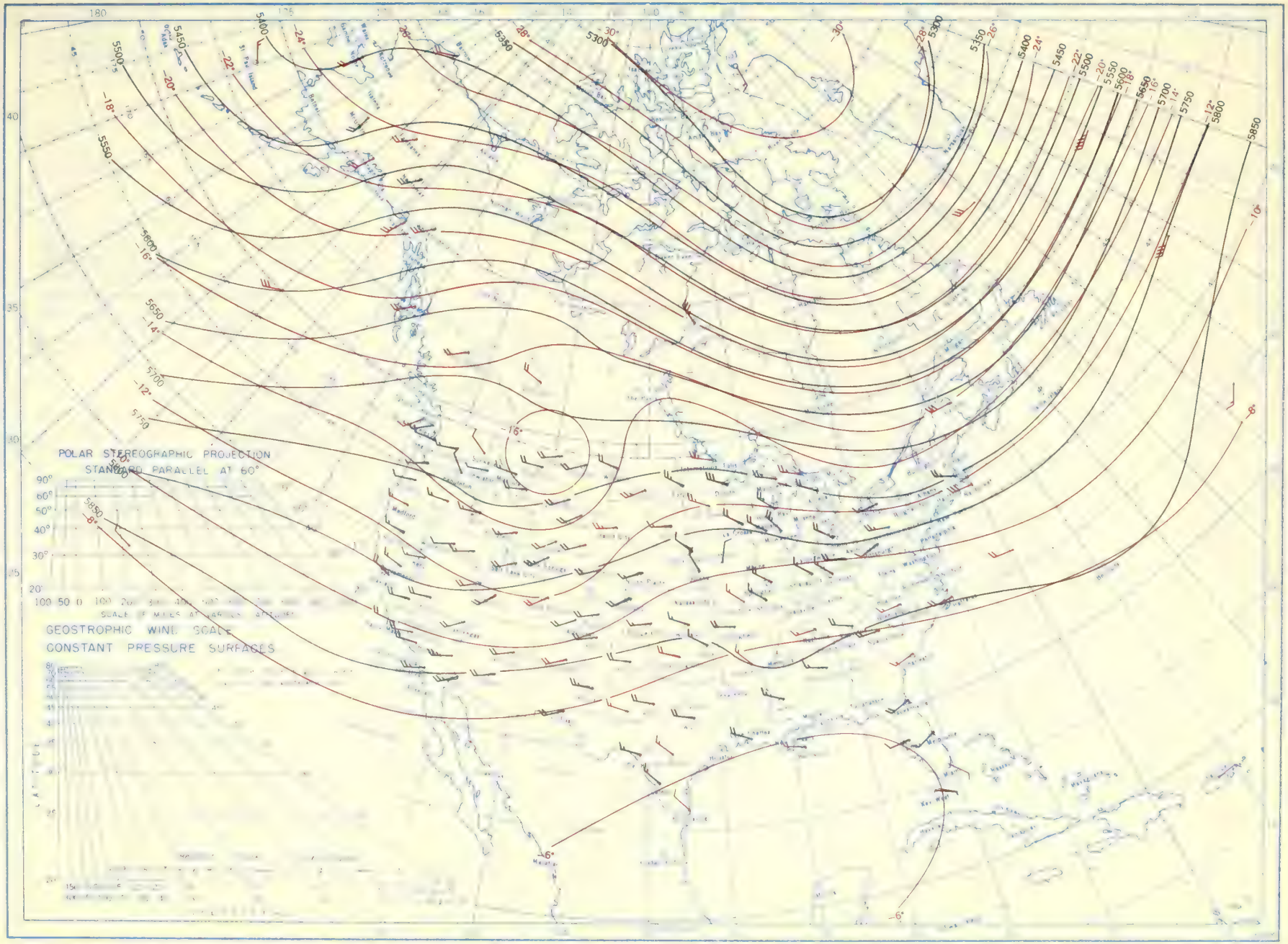
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart IX, September 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)



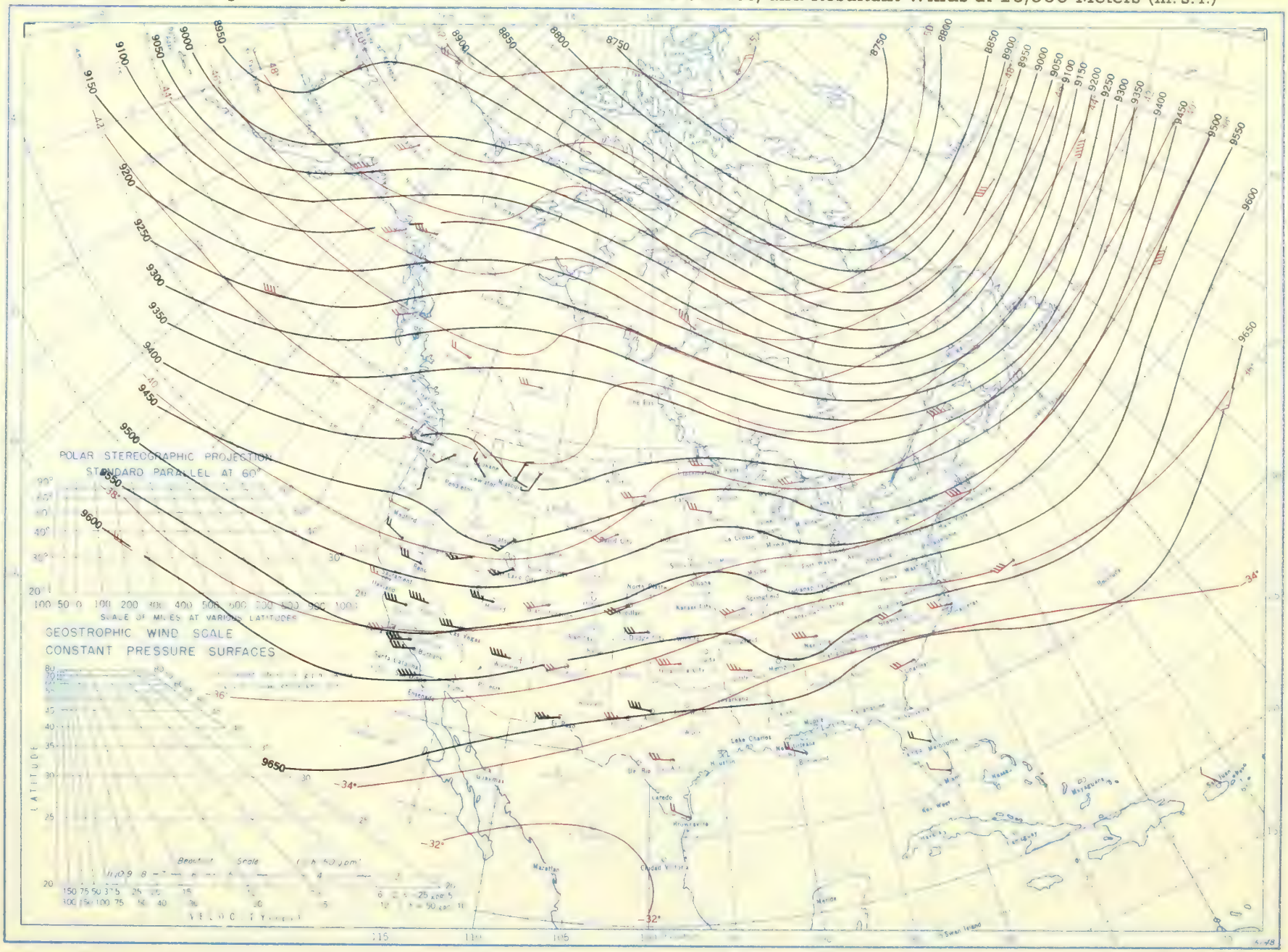
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart X, September 1950. **Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)**



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, September 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T., those indicated by red arrows based on rawins taken at 0300 G. C. T.

U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

AGRICULTURAL ECONOMICS DEPARTMENT
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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

OCTOBER 1950
Volume I No. 10

WASHINGTON: 1950

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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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U. S. DEPARTMENT OF COMMERCE,
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA
NATIONAL SUMMARY

Volume I No. 10

OCTOBER 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

October 1950 was unusually warm and dry, being the warmest and driest on record in some sections of the Southwest. Two unusually severe storms occurred, a hurricane in Florida on the 18th and 19th and a severe extratropical storm over the Northwest during the last week. Weather conditions generally favored agricultural activities and maturity of crops.

The weighted United States average temperature was 59.9°, or 4.4° above the 58-year mean. This was the warmest October since 1947 and the second warmest since 1893. The 1947 average was 60.1°. Colorado was relatively the warmest State, with an average temperature 6.6° above its long-term mean, closely followed by New Mexico with a plus departure of 6.5°. Washington the relatively coolest State with an average temperature 2.2° below its long-term mean, was the only State to show a minus departure.

The highest temperature was 113° at Boca, Calif. on the 13th, a temperature only 4° lower than the October record of 117° recorded in Arizona in 1896. The lowest temperature was 1° recorded at Kings Hill, Mont., on the 1st. Temperatures exceeding 100° were recorded in California, Nevada, and Arizona; and below freezing temperatures were recorded in all States, except Arkansas, Tennessee, Arizona, and the extreme southern States from Texas to South Carolina.

Temperatures were persistently above normal in the Southwest and over practically the entire country during the last half of the month. It was much cooler than normal in central areas during the first decade and slightly cooler than normal in the Northeast during the week ending the 17th.

The country's average precipitation was 1.77 inches. This was 0.31 of an inch less than the 58-year mean, 0.61 of an inch more than the driest October in 1895, and 1.98 inches less than the wettest October in 1941. The greatest monthly total was 34.15 inches, measured at Gasquet Ranger Station in California. The greatest 24-hour amount, 11.50 inches, was measured at Orick Prairie Creek Park in Humboldt County, Calif. on the 29th. These are new October records for California.

Above-normal precipitation occurred mainly in Washington, Oregon, the northern half of California, northern Idaho, eastern Florida, and a few other widely scattered small areas west of the Rocky Mountains. Although showers were frequent in the northwestern coastal areas, a large proportion of the rain in the far West occurred during a severe storm from the 26th through the 29th. During this period new rainfall records for monthly totals and 24-hour amounts were set at many stations in northern California and western Oregon. Most of the rainfall which fell in eastern Florida was associated with the hurricane on the 18th and 19th.

Total snowfall was generally below normal, except in the northwestern mountains. Light to moderate to occasionally heavy snow fell in north-central areas during the first week. Several north-central areas received their first snowfall of the season during this period. The greatest depth on the ground in Minnesota was 4 inches on the 2d, and in North Dakota 7 inches on the 3d. The greatest monthly total in North Dakota was 12 inches, and in Montana 12.5 inches. The only other important snowfall during the month was in the western mountains during the last week, especially from the 26th through the 29th when heavy amounts fell at many stations in the northern mountain regions west of the Continental Divide. A monthly total of 40 inches of snow fell at Timberline Lodge, Oreg. and 23 inches at Twin Lakes, Calif.

In the Southwest it was extremely dry. Arizona reported the driest October since 1909 and the 3d driest on record, with 107 stations receiving no precipitation. Colorado received only 20 percent of its normal precipitation, with no measurable amounts at 31 stations. No precipitation fell in the lower Great Plains and Southwest after the first week.

Weather conditions were generally very favorable for agricultural activities and maturity of crops. In north-central areas where crops were 2 to 3 weeks late due to an unfavorable spring, the hot, dry weather allowed the bulk of the major crops to mature before frost.

In the Main Corn Belt drying weather reduced the content of corn moisture to the extent that soft corn was no longer expected to be a serious problem. Picking was general during the latter part of the month in some areas, and was expected to become general throughout the Main Belt in another week or 10 days if weather conditions continued favorable. At the end of the month gathering was about 34 percent completed in Kansas, 20 percent in South Dakota, 15 percent in northwestern Missouri, 25 percent in Illinois, and 40 percent in Virginia. The freezes on the 4th and 26th in more northern areas resulted in some soft corn in Michigan, Iowa, Nebraska, South Dakota, and Minnesota.

Cotton picking made generally good progress and by the end of the month was practically completed in the south Atlantic and Gulf Coastal Plains and was about one-half completed in the late districts. In the Texas High Plains the absence of frost permitted late cotton to make additional growth. Picking made good progress throughout the Southwest, and by the end of the month was three-fifths completed in Arizona where a record yield per acre was indicated. Small grain seeding was practically completed west of the Mississippi River, and only a small percentage of the intended crop remained to be seeded in the South and East. Due to rains of previous months soil moisture was sufficient generally, despite the lack of precipitation in October; however, surface moisture was not ample in the lower Great Plains and Southwest for germination of late planted grains.

Soybean harvesting, which progressed rapidly,

was completed in sections of Iowa and Missouri, and three-fourths completed in Kansas. With no killing frost by the end of October, most of the grain sorghum crop had matured, and harvesting was well under way in Kansas and just beginning in the Texas Panhandle; moisture content was too high for storage in some areas.

Although October storms were not numerous, total losses were higher than usual due to two major storms. The first of these was a hurricane which swept up the Florida Peninsula on the 17th and 18th. Heavy rains and winds with gusts up to 122 m.p.h. caused nearly $28,000,000 damage in Florida. The storm was not of hurricane intensity while over Georgia on the 18th, but strong winds and abnormally high tides caused a quarter of a million dollars damage in that State. The second storm was extratropical in character and occurred in the Northwest from the 26th to the 29th. Principal damage occurred in Idaho, Washington, Oregon, and northern California, with partial estimates indicating total damages of several million dollars. Record-low pressures for October were measured in Idaho and Oregon, and 24-hour and monthly rainfall records were established at many station in northern California. The all-time maximum wind speed of 56 m.p.h. at Boise, Idaho was equaled. Nine lives were lost as a result of the storm.

CONDENSED CLIMATOLOGICAL DATA

Table I

OCTOBER 1950

Section	Temperature							Precipitation					
			Monthly extremes							Monthly extremes			
	Average	Departure from normal	Station	Highest	Date	Station	Lowest	Date	Average	Departure from normal	Station	Greatest	Station	Least
	°F.	°F		°F.			°F.		In.	In.		In.		In.
Alabama	66.8	+2.0	3 Stations	90	†15	Valley Head	34	13	1.78	-1.10	Vance	5.14	Hayneville	0.12
Arizona	67.3	+6.2	Yuma WB AP	109	12	Maverick	15	28	.03	-.86	Portal	.68	107 Stations	.00
Arkansas	66.5	+3.6	Blytheville	93	16	Batesville L.S.	33	5	1.91	-1.32	Corning	4.04	Parthania	.39
California	63.1	+1.9	Indio U S Date Gdn.	113	13	Boca	8	1	3.23	+2.14	Gasquet R.S.	34.15	54 Stations	.00
Colorado	53.2	+6.6	Holly	97	13	Tabernash	8	†27	.25	-.99	Mitchell 22E	1.95	31 Stations	.00
Florida	75.1	+3.2	Punta Gorda	95	10	Niceville	40	11	7.06	+2.86	Titusville 2W	16.93	Vernon	.57
Georgia	67.8	+2.4	Blakeshear	91	11	2 Stations	34	†13	3.94	+1.20	Brunswick CAA AP	11.09	Edison	.98
Idaho	50.1	-6.1	Moore Exp. Sta. 1W	90	13	do	9	1	2.13	+.71	Deception Creek	12.27	Kuna 2NNE	.06
Illinois	60.7	+4.8	Alton Dam	92	17	Freeport	26	25	1.30	-1.37	Chicago Loyola Univ.	3.43	Alexis Water Wks.	.04
Indiana	59.3	+4.1	3 Stations	90	†16	Wheatfield	25	26	1.46	-1.31	Decatur	5.77	Decker	.40
Iowa	57.7	+5.2	Iowa City	94	18	Saratoga 2E	19	25	1.26	-1.03	Red Oak	5.44	21 Stations	.07
Kansas	62.4	+4.7	2 Stations	95	†13	Goodland	24	23	1.17	-.86	Hanover	5.75	4 Stations	.00
Kentucky	62.4	+3.9	3 Stations	90	†16	Shepherdsville 2NW	30	26	1.77	-.87	Edmonton	4.47	Woodbury Lock 4	.59
Louisiana	70.0	+1.9	Ville Platte	97	11	Clinton No. 1	37	10	2.33	-.87	Grand Isle	10.02	New Iberia	.53
Maryland-Delaware	58.2	+1.7	3 Stations	87	12	Whitehall	15	27	2.58	-.46	Dalecarlia Res.	4.44	Ocean City	.62
Michigan	52.4	+3.6	Wayne	89	17	Cadillac CAA	14	26	1.26	-.89	Yale	3.88	2 Stations	.32
Minnesota	49.3	+3.3	Canby	90	30	Big Falls	18	†23	2.01	+.17	Two Harbors	5.18	Zumbro Falls	.54
Mississippi	68.1	+2.5	Utica	93	16	Hattiesburg	38	†10	1.76	-.80	McComb CAA AP	3.53	Crandall 12N	.23
Missouri	63.2	+5.5	Bakersfield	93	30	Marble Hill	26	5	1.12	-1.82	Campbell	3.12	2 Stations	.00
Montana	47.0	+1.7	2 Stations	87	12	Kings Hill	1	1	.92	-.09	Heron 2SW	8.47	Big Sandy	.00
Nebraska	56.6	+4.6	Culbertson	95	13	Wenzel 19S	19	4	1.11	-.36	2 Stations	5.12	2 Stations	.00
Nevada	55.6	+3.7	Lathrop Wells	102	11	Wilkins	4	2	.65	.00	Marlette Lake	2.87	10 Stations	.00
New England	51.1	+1.4	Waterbury, Conn.	89	1	Lac Frontier, Me.	10	28	2.21	-1.20	Jackman 1NNW, Me.	5.09	Plymouth, Mass.	.69
New Jersey	57.4	+2.5	Rutherford	90	1	Layton 3NW	17	27	1.88	-1.60	Princeton Water Wks.	3.22	Sandy Hook	.69
New Mexico	61.3	+6.1	Hagerman	97	14	Gavilan	10	30	.46	-.67	Elida	3.37	53 Stations	.00
New York	52.4	+2.2	Sutton	89	3	Salisbury	13	27	2.42	-.84	Newark	6.13	2 Stations	.78
North Carolina	63.5	+3.3	Cumberton CAA AP	90	4	Boone	30	27	3.56	+.26	Mt. Mitchell	10.40	Elizabeth City	.82
North Dakota	46.9	+2.9	Ft. Yates	88	31	4 Stations	17	25	.63	-.41	Marmarth	1.64	Lansford	.15
Ohio	57.5	+3.7	Lancaster	87	31	3 Stations	26	†26	2.35	-.16	Van Wert	6.90	Barnesville Wtr.Wks.	.75
Oklahoma	67.5	+4.4	2 Stations	98	†14	2 Stations	23	†	.59	-2.37	Rose	3.80	28 Stations	.00
Oregon	50.6	+.3	3 Stations	89	†11	Seneca	5	1	6.61	+4.39	Illahe 1N	25.31	3 Stations	.17
Pennsylvania	54.7	+2.0	do	87	2	Hawley 1S Wallen Dam	17	27	2.79	-.42	Carter Camp	6.41	Milan	.97
South Carolina	66.1	+1.9	2 Stations	90	20	Bishopville	35	13	3.50	+.59	Walhalla	8.15	Trenton 1NNE	.84
South Dakota	52.4	+3.5	do	93	30	Redig 9NE	13	4	.96	-.25	Wentworth	4.10	Belvidere	.10
Tennessee	63.7	+3.8	do	91	†16	Gatlinburg 2SW	31	†13	1.38	-1.45	Tellico Plains	4.24	Lynnville 4SW	T
Texas	70.6	+2.9	Ballinger	99	1	Miami	33	23	.54	-2.15	San Benito	5.18	76 Stations	.00
Utah	55.2	+5.8	2 Stations	97	†10	Loa	10	1	.34	-.87	Silver Lake Brighton	1.89	25 Stations	.00
Virginia	59.6	+2.0	10 Stations	88	†2	2 Stations	27	26	2.24	-.73	Big Meadows	4.60	Cheriton	.42
Washington	47.9	-2.2	3 Stations	82	†8	Chewelah 2S	15	3	5.94	+3.16	Petersons Ranch	20.62	Ellensburg WB AP	1.52
West Virginia	57.8	+2.9	2 Stations	88	†21	3 Stations	21	†26	2.27	-.54	Birch River 6SSW	5.41	Parkersburg CAA AP	1.05
Wisconsin	52.5	+4.7	Stevens Point	89	18	do	20	25	1.41	-.97	Cumberland	6.34	Kenosha	.36
Wyoming	48.9	+4.6	Torrington Exp. Farm	90	17	South Pass City	5	2	.57	-.56	Bechler River	3.35	4 Stations	.00
Alaska (Aug.)	49.8	-.6	Mile 28 Haines Hwy.	93	17	Barrow	21	22	1.98	+.40	North Dutch Island	13.43	Fort Yukon CAA	.07
Alaska (July)	55.5	+1.6	Radioville	89	9	4 Stations	30	†1	2.26	-.21	Ketchikan	16.95	Fort Yukon CAA	.06
Alaska (August)	54.1	+3.4	Radioville	94	18	Puntilla	25	28	2.35	-1.00	Little Port Walter	20.61	Point Lay	T
Alaska (Sept.)	43.8	+1.5	Mile 28 Haines Hwy.	79	13	Umiat WB	14	26	3.02	+.13	do	33.49	do	T
Hawaii (August)	74.9	-.6	Puunene AP	94	†7	Haleakala R.S.	40	1	6.36	-.02	Kukui	38.00	Puu Anahulu	.66
Hawaii (Sept.)	75.1	-.5	do	95	†11	Hawaii N.P.H.Q.	46	27	2.96	-2.32	Wahiawa WCI	14.60	8 Stations	.00
Hawaii (Oct.)	74.4	.0	do	93	†9	Haleakala R.S.	40	8	3.73	-1.98	2 Stations	16.40	do	.00

† Other dates also.

CLIMATOLOGICAL DATA

Table 2 — OCTOBER 1950

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
ALABAMA																																
Anniston	599	------	1017.6	78	52	64.8	-----	86	15	39	13	0	0	56	--	2.31	-----	0.96	5	--	0.0	0	6.1	E	--	---	--	--	--	--	---	--
Birmingham	610	992.0	1017.3	78	54	65.8	+3.4	86	15	41	5	0	0	55	77	2.41	-0.01	.95	5	1	0	0	6.0	ENE	29	NE	17	16	6	9	4.5	65
Mobile CO	10	------	------	--	--	----	-----	---	--	---	--	--	--	---	--	----	-----	----	--	--	---	---	----	---	34	NE	17	---	---	---	---	70
Mobile	211	1008.3	1016.0	82	59	70.3	-----	88	31	48	10	0	0	60	77	2.75	-----	1.86	6	0	0	0	9.4	NE	--	---	--	20	5	6	3.1	--
Montgomery CO	201	------	------	--	--	----	-----	---	--	---	--	--	--	---	--	----	-----	----	--	--	---	---	----	---	---	---	--	---	---	---	---	--
Montgomery	198	1008.9	1016.5	80	56	68.4	+1.8	86	31	45	14	0	0	58	76	.83	-1.63	.64	5	0	0	0	5.3	NE	28	NE	17	15	9	7	3.8	70
ARIZONA																																
Flagstaff	6993	790.0	1018.9	72	32	52.1	-----	83	12	21	2	0	17	25	40	T	-----	T	0	0	0	0	5.8	SW	--	---	--	26	3	2	1.9	--
Payson CO	4999	850.0	1014.9	83	49	66.1	-----	93	11	41	28	2	0	36	34	T	-----	T	0	1	0	0	3.9	NE	--	---	--	25	3	3	2.1	--
Phoenix CO	1083	------	------	--	--	78.6	+8.0	---	--	---	--	--	--	---	--	----	-----	----	--	--	---	---	----	---	17	W	1	---	---	---	---	93
Phoenix	1108	971.9	1010.2	97	60	78.3	-----	104	8	49	29	28	0	43	33	0	-.47	0	0	0	0	0	3.7	F	--	---	--	23	4	4	2.1	--
Prescott	5014	848.6	1014.6	81	45	63.3	-----	91	11	33	2	2	0	28	30	.02	-----	.02	1	1	0	0	8.0	S	28	SW	1	25	4	2	1.9	91
Tucson	2585	924.5	1010.9	93	61	76.8	+8.1	99	8	52	28	26	0	37	27	T	-.54	T	0	1	0	0	5.1	SSE	26	E	12	23	4	4	2.3	95
Winslow	4880	853.0	1013.4	82	45	63.9	+8.4	88	5	36	29	0	0	26	26	T	-.52	T	0	0	0	0	8.1	SW	44	SSW	1	25	3	3	1.9	--
Yuma	203	1005.1	1010.2	99	64	81.5	-----	109	12	57	30	29	0	44	31	0	-----	0	0	0	0	0	5.7	NNE	25	W	27	24	5	2	1.7	96
ARKANSAS																																
Fort Smith	458	1000.3	1016.8	81	54	67.7	+4.9	89	29	40	9	0	0	55	76	.83	-2.16	.64	3	0	0	0	6.0	NE	23	SW	27	--	--	--	3.6	75
Little Rock	257	1004.1	1017.2	78	56	67.1	+3.5	87	15	46	6	0	0	57	84	1.29	-1.42	.74	3	0	0	0	5.8	SW	23	NW	†7	--	--	--	4.1	68
Texarkana	361	1003.7	1017.1	80	58	68.9	+2.1	87	16	47	5	0	0	58	81	1.74	-1.71	.69	5	0	0	0	6.7	S	--	---	--	19	4	8	3.5	--
CALIFORNIA																																
Bakersfield	489	996.6	1014.6	83	54	68.1	+2.8	97	14	42	1	5	0	46	50	.22	-.15	.20	3	0	0	0	4.4	WNW	--	---	--	24	6	1	1.9	--
Beaumont CO	2589	924.5	1013.4	85	51	67.5	-----	100	13	43	2	10	0	37	40	T	-----	T	0	0	0	0	7.4	NW	†22	E	7	27	3	1	1.1	--
Bishop	4108	873.0	1012.9	81	40	60.3	-----	93	12	29	2	3	3	--	--	.21	-----	.21	1	0	0	0	----	---	--	---	--	19	8	4	3.1	--
Blue Canyon	5280	839.1	1014.5	60	45	52.5	-----	79	10	29	31	0	3	35	58	9.71	-----	2.85	10	1	T	T	11.5	SE	--	---	--	15	3	13	5.2	--
Burbank	699	987.5	1013.4	83	54	68.5	-----	103	12	48	28	7	0	51	62	.36	-----	.34	4	0	0	0	4.8	SE	†16	NNW	23	18	6	7	3.6	--
Eureka CO	43	1012.2	1014.6	63	51	57.1	+3.5	72	19	42	2	0	0	--	--	13.04	+10.71	5.83	14	1	0	0	7.1	---	43	SW	26	4	8	19	7.7	28
Fresno	331	1002.7	1014.4	81	51	65.9	+3.6	97	11	41	2	5	0	49	61	1.19	+.62	.76	5	1	0	0	6.5	NW	32	S	26	18	5	8	3.4	87
Los Angeles CO	312	------	------	--	--	69.5	+4.2	---	--	---	--	--	--	---	--	.24	-.44	----	--	--	---	---	----	---	19	NW	13	--	--	--	--	79
Los Angeles	99	1010.2	1013.7	74	57	65.0	-----	97	13	51	18	2	0	56	76	.12	-----	.12	1	0	0	0	4.3	WSW	--	---	--	15	10	6	4.1	--
Mt. Shasta CO	3543	890.6	1016.0	63	39	50.5	-.7	85	12	26	1	0	5	39	69	13.88	+11.61	4.70	13	0	0	0	7.6	SE	--	---	--	8	8	15	6.4	--
Oakland	3	1015.2	1015.6	72	51	61.4	+2.7	86	13	42	1	0	0	50	70	1.80	+.87	.96	7	0	0	0	6.0	W	--	---	--	11	6	14	5.4	--
Red Bluff	341	1000.7	1013.4	75	53	64.2	-.1	98	10	42	31	5	0	45	56	3.53	+2.20	1.90	13	0	0	0	9.9	SSE	56	SE	28	12	5	14	5.5	60
Sacramento	25	1011.9	1014.3	76	51	63.4	+.5	93	13	39	31	3	0	49	64	2.44	+1.52	1.80	7	1	0	0	8.1	SW	68	SE	26	16	5	10	4.6	69
Sandberg CO	4517	863.2	1013.8	71	52	61.5	-----	86	11	36	31	0	0	33	42	.17	-----	.11	4	0	T	0	15.9	S	--	---	--	24	2	5	2.4	--
San Diego	19	1010.5	1013.5	75	59	66.8	+2.7	90	12	52	19	1	0	58	76	.01	-.53	.01	1	0	0	0	5.6	WNW	22	S	23	22	7	2	2.9	79
San Francisco CO	52	------	------	--	--	----	-----	---	--	---	--	--	--	---	--	----	-----	----	--	--	---	---	----	---	---	---	--	---	---	---	---	64
San Francisco	1	1014.6	1015.2	71	51	60.8	+3.1	85	11	41	2	0	0	50	72	1.98	+1.22	1.19	8	0	0	0	11.1	WNW	51	SW	26	11	7	13	5.2	--
Santa Catalina	1568	957.3	1012.7	77	58	67.6	-----	97	13	49	21	2	0	--	--	.08	-----	.07	2	0	0	0	----	---	--	---	--	21	6	4	2.5	--
Santa Maria	231	1006.1	1014.8	75	48	61.2	-----	103	13	36	2	1	0	49	71	.93	-----	.75	3	0	0	0	5.9	W	--	---	--	20	8	3	2.9	--
COLORADO																																
Alamosa	7534	774.8	1020.1	72	27	49.5	-----	79	12	16	27	0	28	--	--	.19	-----	.17	2	2	T	T	----	---	--	---	--	23	7	1	2.1	--
Colorado Springs	6175	812.4	1015.8	73	42	57.5	-----	83	13	31	3	0	1	27	37	.12	-----	.12	1	1	0	0	11.3	ESE	--	---	--	23	3	5	2.6	--
Denver	5221	837.1	1013.7	77	43	59.9	+10.4	87	12	30	4	0	1	23	31	.12	-.98	.12	1	0	T	T	8.5	S	33	NW	†6	21	6	4	2.8	84
Grand Junction	4849	860.5	1014.7	76	46	60.7	+7.9	83	13	35	2	0	0	25	27	T	-.95	T	0	1	0	0	10.3	ESE	57	W	1	15	8	8	3.8	80
Pueblo	4799	857.1	1014.4	79	41	60.0	+8.8	90	13	32	3	1	1	30	38	.02	-.64	.02	1	0	0	0	6.2	W	50	W	15	18	10	3	2.7	83
CONNECTICUT																																
Bridgeport	7	1018.6	1019.2	65	48	56.6	-----	80	1	31	27	0	1	48	75	1.73	-----	.94	3	0	0	0	9.2	NE	†30	SE	10	11	10	10	5.0	--
Hartford	15	1012.9	1018.9	66	44	54.9	+3.7	84	1	23	27	0	4	46	78	1.85	-1.67	1.07	10	1	0	0	6.1	N	25	NW	20	11	7	13	5.9	53
New Haven	6	1014.9	1018.6	65	47	55.9	+4.1	84	1	27	27	0	2	--	--	1.70	-1.65	.87	7	2	0	0	7.3	---	28	SE	10	11	9	11	5.0	67
DELAWARE																																
Wilmington	73	1014.9	1018.7	68	47	57.6	-----	84	2	29	27	0	1	51	80	2.46	-----	1.48	9	1	0	0	6.3	S	--	---	--	9	9	13	5.8	--
FLORIDA																																
Apalachicola	13	1013.2	1014.9	79	65	72.0	+1.4	84	4	57	10	0	0	--	--	1.06	-2.13	.44	5	1	0	0	9.2	---	30	NE	17	19	4	8	3.5	69
Daytona Beach	33	1013.2	1014.7	83	68	75.5	+3.0	89	†22	60	13	0	0	69	85	13.00	+7.25	6.51	11	4	0	0	10.4	NE	†53	NE	18	10	12	9	5.3	--
Fort Myers	15	1012.9	1013.2	86	70	77.9	+2.0	90	10	63	29	2	0	70	82	3.26	-1.22	1.21	14	5	0	0	8.0	NE	--	---	--	13	10	8	5.0	--
Jacksonville	18	1013.9	1015.4	82	65	73.5	+3.4	87	23	54	31	0	0	65	80	11.45	+6.99	5.85	10	0	0	0	8.1	N	72	E	18	12	6	13	5.6	49
Key West CO	5	------	------	--	--	----	-----	---	--	---	--	--	--	---	--	----	-----	----	--	--	---	---	----	---	25	N	14	10	15	6	4.9	66
Key West	6	1011.6	1012.4	86	75	80.3	+1.0	91	12	71	3	2	0	72	80	6.05	+.05	1.90	15	5	0	0	12.0	NE	--	---	--	---	---	---	---	--
Lakeland	214	------	------	83	68	75.7	+.7	88	7	64	13	0	0	--	--	4.06	+1.44	1.41	9	3	0	0	----	---	--	---	--	12	11	8	5.3	--
Melbourne	22	1012.9	1013.9	84	70	77.1	+2.5	89	†9	64	13	0	0	70	83	10.45	+3.62	4.68	13	4	0	0	11.0	ENE	*55	ENE	18	6	12	13	6.1	--
Miami CO	8	------	------	--	--	----	-----	---	--	---	--	--	--	---	--	----	-----	----	--	--	---	---	----	---	22	S	18	--	--	--	---	54
Miami	8	1011.2	1012.8	86	72	78.9	-----	89	23	66	31	0	0	72	82	12.48	-----	4.27	21	7	0	0	8.2	NE	--	---	--	10	11	10	5.9	--
Orlando	111	1010.2	1014.3	86	68	77.0	+2.9	90	8	63	13	5	0	69	82	14.51	+9.90	7.74	8	1	0	0	10.2	N	*48	NE	18	11	12	8	5.2	--
Pensacola	13	1013.3	1015.5	80	63	71.5	+1.6	87	12	53	10	0	0	60	--	3.01	-1.19	1.26	5	0	0	0	8.0	NE	23	E	17	19	5	7	3.9	84
Tallahassee	64	1012.9	1015.2	82	62	71.9	+4.2	86	†7	49	14	0	0	61	75	1.65	-1.14	.72	5	2	0	0	6.3	NE	--	---	--	16	6	9	4.4	--
Tampa	24	1012.1	1013.7	85	69	76.9	+2.6	93	7	63	13	1	0	67	79	2.84	-.25	1.03	10	3	0	0	7.2	NE	34	NW	18	14	9	8	4.6	71
West Palm Beach	14	1011.5	1012.5	86	72	79.0	+.9	91	9	67	15	6	0	72	81	10.12	+.10	4.18	18	9	0	0	8.1	NE	--	---	--	6	11	14	7.0	--
GEORGIA																																
Albany	190	1009.5	1016.3	81	58	69.9	-----	87	†4	45	13	0	0	58	73	1.55	-----	.92	8	0	0	0	4.5	NE	*55	NNE	19	19	3	9	3.5	--
Atlanta	977	975.8	1017.2	75	57	65.9	+3.2	84	15	48	9	0	0	55	75	2.57	-.12	2.09	6	0	0	0	8.7	ENE	31	NE	19	17	4	10	4.0	64
Athens	798	989.2	------	76	56	65.9	-----	85	15	46	14	0	0	--	--	6.02	-----	3.77	7	0	0	0	----	---	--	---	--	---	---	---	4.2	--
Augusta	426	1012.2	1017.7	79	56	67.3	+1.4	86	20	39	14	0	0	57	78	2.09	-.54	1.62	7	1	0	0	5.8	NE	--	---	--	17	5	9	4.1	--
Columbus	382	1002.7	1016.7	80	55	67.6	-----	88	15	41	14	0	0	57	80	1.49	-----	.79	6	1	0	0	6.4	ENE	--	---	--	18	2	11	3.9	--
Macon	354	1003.5	1016.5	80	57	68.0	-----	88	31	42	14	0	0	58	76	2.27	-----	1.74	8	0	0	0	7.5	NE	36	N	19	17	3	11	4.1	64
Rome	637	988.2	1018.3	78	51	64.5	+1.5	86	15	40	13	0	0	55	82	3.85	+.44	2.95	5	2	0	0	5.9	N	--	---	--	15	9	7	4.5	--
Savannah	38	1013.9	1016.5	79	60	69.2	+3.5	86	12	44	14	0	0	61	80	4.83	+1.85	2.37	8	0	0	0	8.8	NNE	41	NE	18	13	6	12	5.3	61
Valdosta	200	1007.8	1015.4	82	60	70.8	+1.5	88	4	45	14	0	0	60	--	2.79	+.68	.90	10	1	0	0	8.8	NE	--	---	--	15	5	11	4.7	--
IDAHO																																
Boise	2842	919.4	1013.3	69	45	56.9	+6.8	88	13	29	1	0	1	36	48	.42	-.82	.25	5	1	T	0	12.0	SE	56	SE	26	9	8	14	6.0	52
Lewiston	1413	961.4	1013.1	63	43	53.2	-----	79	8	26	1	0	1	44	72	2.79	-----	1.19	13	1	0	0	5.8	E	--	---	--	4	8	19	7.8	--
Pocatello	4444	862.5	1015.1	67	38	52.3	+5.8	81	11	18	1	0	7	32	48	1.19	-.49	.37	7	1	T	T	10.2	S	45	W	27	10	12	9	5.2	63
ILLINOIS																																
Cairo CO	314	1004.4	1016.9	76	57	66.2	+5.7	84	29	42	5	0	0	--	--	2.06	-.70	1.55	5	0	0	0	7.6	---	26	NW	8	--	--	--	4.6	78
Chicago	618	991.9	1017.1	69	49	59.0	+6.5	87	18	33	25	0	0	46	72	1.29	-1.27	1.00	5	3	0	0	8.6	S	35	N	12	10	14	7	4.9	70
Joliet	580	995.3	1017.0	70	44	56.9	+5.3	86	17	29	25	0	3	47	81	.93	-1.89	.86	3	1	0	0	8.7	S	--	---	--	13	10	8	5.0	--
Moline	589	994.6	1017.2	72	47	59.2	+7.2	86	17	31	25	0	1	46	71	.61	-1.78	.49	4	2	T	0	8.4	S	31	SE	26	14	9	8	4.2	72
Peoria	659	994.6	1017.1	72	48	60.1	+6.6	86	17	33	5	0	0	47	72	.61	-1.68	.30	3	4	T	0	9.8	S	35	W	11	10	11	10	5.0	68
Springfield	598	993.9	1017.9	73	49	61.1	+7.5	89	30	32	25	0	1	49	81	.97	-1.56	.64	4	3	0	0	11.0	SSE	31	NW	†11	--	--	--	4.5	71
INDIANA																																
Evansville	385	1002.0	1018.0	75	50	62.6	+5.6	86	17	37	5	0	0	52	81	1.05	-1.77	.88	4	0	0	0	6.6	SSW	27	SE	7	--	--	--	4.8	81
Fort Wayne	801	986.1	1017.8	68	46	56.9	+4.2	85	17	31	26	0	1	48	82	2.41	-.19	2.01	7	2	T	T	6.2	SW	30	NW	12	9	10	12	8.0	64
Indianapolis	796	987.8	1017.4	71	48	59.2	+5.1	86	17	35	25	0	0	49	81	.98	-1.80	.49	6	2	0	0	8.9	SE	38	NW	12	--	--	--	5.0	65
South Bend	768	988.8	1017.0	68	46	57.0	+3.7	86	17	30	26	0	2	47	80	.42	-2.65	.20	6	1	0	0	11.0	SSW	*30	NW	12	11	P	12	5.6	--

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft	Mb.	Mb.	°F	°F	°F	°F	°F		°F				°F	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0—3	4—7	8—10	0—10	%
Terre Haute	585	996.6	1017.9	72	48	59.9	+3.7	86	17	32	5	0	1	49	81	1.06	-1.69	0.73	6	3	0.0	0.0	6.4	S	28	NW	12	--	--	--	5.1	68
IOWA																																
Burlington	605	990.9	1016.6	73	46	59.6	+5.8	87	18	32	5	0	3	46	73	.36	-2.33	.30	4	2	0	0	9.3	S	35	NW	11	14	11	6	4.1	79
Charles City CO	1013	980.0	1016.9	68	44	55.9	+7.3	84	18	27	25	0	2	--	--	1.42	-.91	1.13	6	1	0	0	6.4	---	19	SE	6	16	9	6	3.5	69
Davenport CO	579	994.6	------	71	50	60.5	+6.8	85	17	33	4	0	0	--	--	.43	-1.96	.36	4	2	T	T	---	---	--	---	--	--	--	--	---	--
Des Moines	800	984.8	1016.2	73	47	60.0	+6.6	87	18	30	25	0	2	44	66	.77	-1.73	.48	4	2	0	0	10.0	S	36	SW	31	--	--	--	3.5	75
Dubuque CO	641	990.9	1016.3	70	47	58.5	+6.6	87	18	34	4	0	0	--	--	.27	-2.21	.20	2	1	0	0	5.2	---	17	SE	6	--	--	--	4.5	79
Sioux City	1097	973.6	1015.0	70	42	55.7	+6.0	87	18	27	25	0	4	42	70	1.10	-.67	1.03	4	0	0	0	10.0	SE	40	NW	7	20	4	7	3.3	82
KANSAS																																
Concordia CO	1375	965.8	1015.2	74	50	62.0	+6.1	88	31	36	23	0	0	--	--	3.49	+1.52	3.49	2	3	0	0	6.9	---	23	S	6	--	--	--	3.1	77
Dodge City	2594	927.9	1014.9	76	49	62.5	+6.4	89	30	37	3	0	0	43	59	.66	-.64	.66	1	2	0	0	13.3	S	43	NE	24	17	9	5	3.6	85
Goodland	3645	888.6	1014.9	76	40	58.2	+4.2	91	30	24	23	2	2	37	57	.23	-.77	.23	1	1	0	0	12.4	S	38	NW	7	18	9	4	3.3	--
Topeka	926	983.7	1015.9	77	48	62.8	-----	90	30	34	25	1	0	49	74	2.25	-----	1.59	4	4	0	0	8.9	SSW	40	S	31	--	--	--	3.7	79
Wichita	1372	967.2	1015.2	77	53	65.0	+6.4	90	26	38	4	1	0	48	63	.48	-2.11	.35	3	2	0	0	13.7	S	42	S	31	--	--	--	4.0	88
KENTUCKY																																
Lexington	979	982.4	1018.0	73	50	61.5	+4.1	84	17	37	13	0	0	51	74	1.51	-1.08	.87	4	1	0	0	9.1	SSW	--	---	--	14	10	7	4.4	--
Louisville	485	983.4	1017.3	75	50	62.3	+4.8	87	17	35	26	0	0	51	72	.99	-1.66	.78	4	0	0	0	7.5	N	29	NW	12	13	9	9	4.7	76
LOUISIANA																																
Baton Rouge	64	1013.2	1016.1	83	59	70.8	+1.7	88	16	49	10	0	0	58	76	1.33	-2.12	1.17	3	1	0	0	5.3	NE	--	---	--	--	--	--	3.0	--
Lake Charles	12	1014.6	1015.7	84	59	71.5	+1.8	90	16	49	10	1	0	60	82	2.35	-1.79	2.35	1	0	0	0	5.4	N	--	---	--	--	--	--	3.0	--
New Orleans CO	12	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	-----	---	--	---	--	--	--	--	---	80
New Orleans	12	1013.5	1015.5	81	61	71.2	-----	87	12	52	10	0	0	61	79	1.18	-----	1.13	3	0	0	0	7.7	ENE	25	NE	17	22	4	5	2.5	--
Shreveport	174	1007.5	1016.5	81	58	69.8	+2.7	88	15	46	9	0	0	61	83	3.08	+.39	2.38	5	0	0	0	7.3	SSE	27	NW	8	--	--	--	3.5	79
MAINE																																
Caribou	624	994.2	1017.4	51	34	42.6	+1.1	77	3	19	28	0	13	35	76	1.99	-1.57	.40	12	2	1.8	2	14.5	SSE	*42	WSW	14	3	9	19	7.7	--
Eastport	33	1015.2	1018.0	54	42	48.3	+.8	73	1	33	27	0	0	--	--	2.33	-1.22	1.24	11	3	.2	T	10.9	---	41	E	11	10	6	15	6.1	52
Portland	61	1013.9	1017.8	61	38	49.2	+.5	85	1	21	27	0	11	43	81	2.11	-1.03	.99	7	1	0	0	7.7	SW	43	E	10	13	8	10	4.9	63
MARYLAND																																
Baltimore CO	14	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	-----	---	49	NW	12	--	--	--	---	50
Baltimore	146	1014.6	1019.1	69	49	58.9	-----	85	2	32	27	0	1	51	78	2.67	-----	1.62	7	1	0	0	8.9	W	--	---	--	11	9	11	5.4	--
Frederick	294	------	------	69	46	57.8	-----	85	†2	33	6	0	0	--	--	2.44	-----	1.13	11	1	0	0	-----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Boston	12	1013.9	1018.5	64	48	56.3	+2.7	85	1	33	27	0	0	44	69	1.99	-1.16	1.28	5	1	0	0	11.5	SW	†32	E	10	16	7	8	4.2	68
Nantucket	43	1018.0	1018.4	61	47	54.4	+.2	77	1	34	27	0	0	49	81	1.26	-2.13	.85	5	1	0	0	11.4	E	37	SW	13	12	11	8	5.1	59
Pittsfield	1153	976.0	1018.6	62	38	49.9	+3.1	80	1	22	27	0	10	--	--	1.55	-1.53	.64	8	1	0	0	8.2	---	--	---	--	11	10	10	5.2	--
MICHIGAN																																
Alpena CO	587	993.9	1016.6	59	44	51.6	+4.5	84	18	30	26	0	1	--	--	2.35	-.36	1.12	11	0	T	0	10.0	---	34	NW	12	7	9	15	6.6	41
Detroit	619	990.5	1017.5	66	47	56.4	+4.5	83	18	33	26	0	0	47	80	3.56	+1.18	1.61	8	4	0	0	7.7	S	30	NW	12	--	--	--	5.7	59
Escanaba CO	594	993.6	1015.9	57	43	49.8	+3.8	68	2	32	23	0	1	--	--	1.32	-1.31	.63	8	2	T	T	10.5	---	29	N	21	--	--	--	6.2	48
Grand Rapids	638	991.5	1017.1	65	44	54.6	+6.2	82	18	28	26	0	3	45	81	.84	-1.97	.36	8	1	0	0	9.5	SSW	28	NW	12	--	--	--	6.2	52
Lansing	859	985.4	1017.7	64	45	54.3	+4.0	81	18	28	28	0	1	46	82	1.22	-1.25	.32	10	3	0	0	12.6	SSW	34	W	12	--	--	--	5.8	57
Marquette CO	677	988.2	1015.6	57	42	49.6	+2.9	86	18	30	25	0	3	--	--	.60	-2.16	.19	8	3	T	T	8.9	---	31	S	16	--	--	--	8.2	44
Muskegon	627	993.6	1016.9	63	44	53.6	+2.3	78	1	25	26	0	2	47	83	1.62	-1.08	.88	6	1	0	0	7.9	SW	--	---	--	10	7	14	5.5	--
Sault Ste. Marie	721	993.2	1016.5	56	40	47.7	+4.7	80	1	26	26	0	5	41	85	1.86	-1.23	.49	11	2	2.0	2	8.7	NW	32	W	19	--	--	--	7.9	42
Ypsilanti	722	988.8	1017.4	65	50	55.6	-----	84	17	32	26	0	1	47	81	2.92	-----	1.21	9	1	0	0	8.9	SW	*28	WNW	12	10	7	14	5.8	--
MINNESOTA																																
Duluth	1128	962.8	1015.0	55	37	45.9	-----	74	31	28	20	0	7	38	82	3.87	-----	2.81	11	6	.4	T	10.5	WNW	38	W	24	--	--	--	6.3	52
Intern'l Falls	1179	1006.4	1014.3	54	36	44.8	+3.1	75	30	21	23	0	11	37	82	1.96	+.07	.81	11	3	.2	T	-----	---	--	---	--	4	8	19	7.2	--
Minneapolis	830	1014.6	1014.5	64	43	53.7	+4.8	87	18	28	25	0	4	41	70	1.22	-.86	.96	7	2	0	0	11.1	SE	40	NW	11	--	--	--	4.1	63
Rochester	1014	978.3	1015.7	66	42	53.9	+5.9	84	18	23	25	0	4	41	72	.83	-1.27	.49	6	1	T	T	10.5	SE	--	---	--	16	6	9	4.3	--
St. Cloud	1034	976.3	1014.7	61	37	49.3	+1.9	78	18	23	25	0	6	39	78	3.76	+1.78	3.30	6	3	T	0	7.1	WNW	--	---	--	8	14	9	5.4	--
St. Paul	703	988.2	1014.8	65	43	53.8	+5.2	87	18	28	25	0	3	72	42	1.49	-.71	1.12	6	3	0	0	10.5	SE	33	NW	11	15	8	8	4.4	--
MISSISSIPPI																																
Jackson	315	1005.1	1016.9	82	56	68.8	+2.9	90	15	45	10	2	0	57	73	1.30	-1.29	.62	8	1	0	0	5.8	NW	26	N	19	18	6	7	3.5	70
Meridian	294	1003.4	1016.8	81	54	67.3	+4.6	87	30	42	13	0	0	57	79	.46	-1.93	.33	3	0	0	0	4.9	E	--	---	--	18	4	9	3.9	--
Vicksburg CO	234	1008.8	------	79	60	69.5	+2.8	88	16	48	5	0	0	--	--	1.43	-1.34	1.04	6	1	0	0	7.0	---	24	N	19	17	5	9	3.6	72
MISSOURI																																
Columbia CO	733	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	-----	---	----	---	--	--	--	--	---	--
Columbia	733	987.8	1016.4	75	51	63.1	+6.7	89	30	35	4	0	0	48	71	.97	-1.64	.70	2	2	0	0	8.4	SSE	25	SSW	31	15	7	9	4.4	73
Kansas City	741	981.0	1016.0	77	52	64.9	+7.2	91	30	38	4	2	0	48	63	.50	-2.19	.37	1	1	0	0	8.4	S	38	SW	31	15	12	4	3.8	79
St. Joseph	809	980.7	1015.5	76	48	62.2	+6.2	88	15	35	4	0	0	48	73	.87	-2.02	.66	4	3	0	0	9.4	S	32	S	31	16	10	5	3.4	79
St. Louis CO	465	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	-----	---	35	SW	7	--	--	--	---	76
St. Louis	465	996.3	1016.6	76	53	64.2	+6.9	90	30	39	5	1	0	50	69	1.48	-1.94	.81	4	0	0	0	6.5	S	--	---	--	--	--	--	4.6	--
Springfield	1265	969.5	1016.8	76	52	63.8	+6.2	87	14	37	4	0	0	52	74	2.44	-.61	2.26	3	1	0	0	10.9	SSE	33	NW	8	13	7	11	4.7	79
MONTANA																																
Billings	3568	888.9	1012.6	64	40	51.6	+3.6	82	12	23	1	0	7	34	56	.83	-----	.57	4	1	1.9	2	10.6	SW	49	W	6	6	16	9	6.2	52
Butte	5530	827.6	1015.4	57	29	43.1	+1.6	74	11	12	1	0	20	31	64	.53	-.26	.20	11	1	T	T	9.1	S	--	---	--	5	8	18	7.2	--
Glasgow CO	2090	938.0	1012.9	61	35	48.0	+3.4	83	30	23	3	0	10	34	63	.31	-.47	.14	4	0	.7	T	-----	---	--	---	--	4	6	21	7.5	--
Great Falls	3664	885.2	1011.8	60	39	49.2	+2.0	78	12	22	1	0	9	31	51	.03	-.83	.02	2	0	.3	T	14.4	SW	61	SW	10	7	5	19	6.9	57
Havre CO	2488	923.1	1012.2	60	35	47.7	+3.2	82	8	20	24	0	12	--	--	.24	-.43	.09	7	0	.7	T	9.0	---	43	W	10	5	12	14	6.7	47
Helena	3893	871.0	1013.8	60	35	47.7	+3.9	80	12	15	1	0	11	34	64	.43	-.18	.19	10	0	.2	T	6.8	W	47	SE	27	4	14	13	6.9	57
Kalispell	2965	908.9	1012.6	54	35	44.8	-----	70	8	17	3	0	8	37	--	2.58	-----	.64	16	2	T	0	7.6	S	--	---	--	0	10	21	8.5	--
Miles City	2629	929.2	1013.6	64	38	51.2	-----	78	12	27	1	0	6	37	--	.40	-----	.16	6	2	.6	1	9.0	SSE	--	---	--	8	13	10	5.9	--
Missoula	3201	899.8	1014.5	57	36	46.5	+3.2	75	8	23	24	0	9	38	75	1.41	+.46	.67	15	0	.1	T	5.0	SE	51	SW	8	0	7	24	8.7	33
NEBRASKA																																
Grand Island	1841	948.5	1014.7	71	43	57.0	-----	88	30	29	23	0	3	41	65	1.07	-----	1.06	2	3	0	0	11.9	S	--	---	--	17	7	7	3.5	--
Lincoln CO	1184	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	-----	-----	----	--	--	---	---	-----	---	34	W	7	--	--	--	---	82
Lincoln	1180	972.2	1015.3	72	44	57.8	+4.8	86	18	30	4	0	3	44	72	1.98	+.10	1.85	4	4	0	0	7.7	S	--	---	--	--	--	--	3.2	--
Norfolk	1554	959.7	1015.5	69	43	56.2	+4.5	90	30	28	4	1	3	41	68	1.15	-.39	1.10	2	2	0	0	11.3	NNW	--	---	--	--	--	--	3.4	--
North Platte	2783	916.0	1014.6	73	39	55.8	+6.1	91	30	25	23	1	5	39	65	.17	-.90	.17	2	3	0	0	9.5	S	40	N	31	16	10	5	3.7	76
Omaha	978	975.6	1015.4	72	46	59.1	+5.7	86	18	32	25	0	1	45	71	2.95	+.78	2.38	4	4	0	0	9.8	SSE	37	W	7	--	--	--	3.2	76
Scottsbluff	3950	879.4	1015.1	72	37	54.6	+4.9	86	12	30	27	0	9	34	59	.17	-.78	.17	1	1	T	0	8.1	ESE	--	---	--	14	10	7	3.9	--
Valentine CO	2581	922.1	1014.9	69	40	54.5	+5.2	89	30	25	4	0	4	--	--	.33	-.77	.33	2	2	T	0	8.8	---	34	W	7	11	10	10	4.9	74
NEVADA																																
Elko	5075	844.6	1015.2	70	30	50.2	-----	84	11	14	2	0	18	30	49	.84	-----	.42	8	1	T	0	5.4	SW	--	---	--	14	8	9	4.2	--
Ely	6257	809.7	1015.6	70	33	51.1	+9.3	81	11	16	1	0	15	--	--	.63	-.14	.33	3	1	T	0	12.9	---	65	S	27	17	10	4	3.4	80
Las Vegas	2162	936.0	1010.9	87	56	71.8	+8.1	97	12	44	3	10	0	23	18	T	-.28	T	0	0	0	0	7.5	SW	--	---	--	26	4	1	1.6	91
Reno	4404	861.2	1013.9	71	35	53.3	+4.8	85	11	21	1	0	10	33	50	1.56	+1.20	1.11	6	0	0	0	7.1	S	56	S	29	19	3	9	4.3	69
Winnemucca	4299	866.6	1014.3	71	33	52.0	+3.7	86	11	21	6	0	12	28	42	.72	+.10	.42	6	0	0	0	8.6	---	50	W	30	12	10	9	4.7	71

See footnotes at end of table.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure		Temperature										Precipitation					Wind				No. of days (sunrise to sunset)				
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Total	Departure from normal	Greatest in 24 hours	No. of days: 01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	Sky cover: Clear	Sky cover: Partly cloudy	Sky cover: Cloudy	Sky cover: tenths	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F	°F.	°F.	°F		°F.				°F	%	In.	In.	In.			In.	In.	M p.h		M p.h			0–3	4–7	8–10	0–10	%
NEW HAMPSHIRE																																
Concord	339	1007.5	1018.4	63	38	50.6	+2.8	85	1	21	16	0	11	40	74	1.92	-0.93	1.26	6	3	0.0	0	5.0	NW	29	NW	20	12	8	11	5.1	54
Mt. Washington	6262	806.6	1021.2	38	26	31.9	+2.2	57	1	10	26	0	24	--	--	3.78	-2.49	1.54	13	0	4.8	3	31.5	---	--	---	--	8	8	15	6.3	47
NEW JERSEY																																
Atlantic City CO	8	1016.3	1018.3	66	54	59.9	+3.0	80	30	38	27	0	0	--	--	1.32	-1.88	.79	6	1	0	0	14.5	---	43	NE	23	8	8	15	5.9	55
Newark	11	1017.6	1018.7	68	49	58.5	+2.9	85	1	35	27	0	0	49	73	1.42	-2.37	.50	7	1	0	0	8.3	NE	*35	NE	13	9	12	10	5.3	--
Trenton	56	1011.5	1018.3	67	49	58.4	+2.8	83	1	33	27	0	0	--	--	1.88	-.90	1.09	5	0	T	T	7.4	---	26	NW	13	10	7	14	5.7	58
NEW MEXICO																																
Albuquerque	5310	850.3	1013.2	81	51	65.8	+9.2	87	11	42	29	0	0	32	32	.01	-.80	.01	1	1	0	0	7.4	S	33	S	1	22	8	1	2.2	93
Clayton	4969	848.6	1015.1	78	44	61.0	+6.3	89	13	36	23	0	0	41	55	.48	-.84	.43	2	1	T	T	13.6	W	--	---	--	18	10	3	3.0	--
Raton	6379	807.3	1015.6	77	38	57.3	-----	85	13	29	30	0	5	31	43	.02	-----	.02	1	1	0	0	7.9	SW	--	---	--	18	10	3	3.1	--
Roswell	3611	892.7	1014.7	83	47	65.4	+5.9	90	6	35	29	1	0	43	52	1.82	+.40	1.82	1	3	0	0	6.7	SSE	33	S	15	19	9	3	2.7	83
NEW YORK																																
Albany	277	1013.9	1017.8	64	41	52.6	+3.3	83	2	21	27	0	6	44	76	1.58	-.84	1.06	7	0	0	0	7.6	S	34	W	1	14	7	10	4.9	54
Bear Mountain	1300	------	------	62	47	54.5	-----	78	1	30	27	0	1	--	--	2.47	-----	1.13	8	1	0	0	----	---	--	---	--	5	11	15	6.6	--
Binghamton CO	858	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	26	W	13	--	--	--	---	50
Binghamton	828	987.5	1018.6	65	40	52.2	-----	84	2	21	27	0	5	44	79	1.10	-----	.58	7	0	0	0	----	---	--	---	--	5	11	15	6.6	--
Buffalo	693	989.5	1017.4	64	46	54.7	+3.6	82	11	32	27	0	2	45	75	2.36	-.93	1.53	10	0	0	0	11.8	SW	35	W	12	11	5	15	6.0	55
Canton	406	1000.7	1016.9	60	41	50.3	+2.8	82	2	21	27	0	6	--	--	2.91	-.12	.67	13	2	0	0	7.4	---	26	SW	19	8	10	13	6.4	34
New York CO	10	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	--	---	--	--	--	--	---	57
New York	19	1017.3	1018.8	68	53	60.2	-----	87	3	39	27	0	0	49	71	2.13	-----	1.17	6	1	0	0	----	---	35	NW	20	10	10	11	5.3	--
Oswego	292	1004.7	1017.3	61	46	53.5	+3.2	80	2	29	27	0	1	--	--	5.30	+2.02	2.49	11	2	0	0	9.1	---	28	W	13	11	4	16	5.9	51
Rochester	543	998.3	1017.7	64	44	54.0	+2.5	86	2	27	27	0	3	45	77	3.68	+1.03	1.55	13	1	0	0	8.8	SW	42	W	13	9	7	15	6.0	53
Syracuse	399	995.9	1018.1	64	43	53.3	+3.8	86	2	25	27	0	3	45	76	3.41	+.28	1.74	10	2	0	0	8.8	S	33	NW	25	8	8	15	6.2	47
NORTH CAROLINA																																
Asheville CO	2203	------	------	72	50	61.2	+5.9	82	15	38	14	0	0	--	--	1.84	-.91	1.39	6	2	0	0	----	---	25	NW	12	15	9	7	4.6	72
Asheville	2093	------	1018.9	--	--	----	-----	--	--	--	--	--	--	50	81	----	-----	----	--	--	---	---	4.8	NW	--	---	--	--	--	--	---	--
Charlotte CO	741	990.2	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	19	N	5	--	--	--	---	72
Charlotte	753	------	1018.0	75	54	64.6	+4.7	85	31	43	14	0	0	53	72	2.90	-.05	2.39	7	0	0	0	7.3	NE	--	---	--	16	6	9	4.4	--
Greensboro	891	987.1	1019.1	73	51	61.8	+3.3	84	31	38	14	0	0	52	77	3.70	+.65	1.42	9	1	0	0	8.1	NE	22	NE	4	14	10	7	4.2	61
Hatteras	4	1016.6	1017.2	74	64	68.9	+3.0	79	8	51	14	0	0	62	83	5.63	+.68	2.79	5	2	0	0	11.2	N	27	N	5	11	6	14	5.5	68
Raleigh CO	400	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	19	NE	4	--	--	--	---	48
Raleigh	438	1002.7	1018.3	75	52	63.4	-----	87	4	37	14	0	0	53	78	3.27	-----	1.41	10	1	0	0	5.3	NE	--	---	--	13	8	10	5.1	--
Wilmington CO	6	1015.9	------	77	60	68.3	+3.0	83	30	50	14	0	0	--	--	3.84	+.57	2.02	8	2	0	0	----	---	27	S	9	7	10	14	5.9	57
Wilmington	30	------	1017.4	--	--	----	-----	--	--	--	--	--	--	61	--	----	-----	----	--	--	---	---	5.8	NE	--	---	--	--	--	--	---	--
Winston-Salem	967	983.7	1018.9	73	53	62.6	+4.0	86	31	43	14	0	0	51	71	3.65	+.49	1.02	9	1	0	0	9.3	ENE	--	---	--	14	9	8	4.4	--
NORTH DAKOTA																																
Bismarck	1653	952.9	1013.8	62	35	48.6	+5.0	84	30	26	4	0	12	36	71	.59	-.35	.27	8	0	0	0	9.6	WNW	45	SE	27	5	12	14	6.4	56
Devils Lake CO	1471	959.7	1013.2	56	35	45.5	+3.1	76	30	23	3	0	9	--	--	.48	-.77	.42	2	0	4.9	5	8.9	---	26	W	11	--	--	--	6.1	57
Fargo	895	978.7	1013.6	59	37	47.5	+3.0	78	29	21	25	0	8	37	73	.99	-.70	.89	5	2	1.0	1	13.7	SSE	43	NW	11	--	--	--	6.0	50
Williston CO	1877	945.1	1012.5	59	35	46.9	+3.5	74	13	24	3	0	8	34	67	.44	-.42	.33	3	0	.1	T	7.0	---	35	W	23	--	--	--	7.9	54
OHIO																																
Akron	1210	973.2	1018.4	65	44	54.9	+2.5	80	29	34	5	0	0	47	79	1.19	-1.48	.36	8	2	0	0	7.0	S	--	---	--	13	7	12	5.0	--
Cincinnati CO	553	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	--	---	--	--	--	--	---	51
Cincinnati	871	985.8	1017.7	71	50	60.1	-----	86	17	34	5	0	0	50	74	1.86	-----	1.15	6	0	0	0	6.4	SW	--	---	--	10	10	11	5.2	--
Cleveland	787	989.5	1017.4	68	48	57.6	+4.9	84	18	33	26	0	0	48	76	1.73	-1.05	.74	7	2	0	0	9.3	S	36	NW	12	11	7	13	5.4	60
Columbus CO	724	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	--	---	--	--	--	--	---	59
Columbus	815	987.8	1017.8	69	48	58.1	+4.6	83	31	31	26	0	1	49	76	2.06	-.71	.90	8	1	0	0	6.5	S	*26	WNW	12	11	9	11	5.3	--
Dayton	1002	981.7	1018.0	68	49	58.5	+4.7	81	17	36	5	0	0	49	76	2.57	-.01	1.99	4	1	0	0	9.6	SE	39	W	13	10	12	9	5.1	69
Sandusky	603	994.9	------	67	50	58.7	+4.4	85	17	38	26	0	0	--	--	2.08	-.36	1.36	6	2	0	0	7.1	---	25	NW	12	10	10	11	5.3	63
Toledo	621	994.6	1017.8	67	46	56.1	+4.5	83	18	33	26	0	0	48	79	4.02	+1.65	2.48	7	1	0	0	8.4	SSW	31	NW	13	13	5	14	5.7	55
Youngstown	1178	975.3	1018.3	65	44	54.5	+2.6	81	18	32	26	0	1	46	79	1.97	-.55	.47	8	4	0	0	7.8	SW	*28	W	12	13	4	14	5.5	--
OKLAHOMA																																
Oklahoma City CO	1254	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	25	S	6	--	--	--	---	83
Oklahoma City	1254	989.5	1015.7	80	54	67.4	+5.9	91	11	41	23	2	0	52	66	.47	-2.39	.47	2	0	0	0	14.1	S	--	---	--	--	--	--	3.3	--
Tulsa	672	991.5	1015.5	81	54	67.2	+5.6	91	14	43	9	3	0	52	68	.86	-2.49	.86	2	0	0	0	11.1	S	30	S	31	--	--	--	4.2	78
OREGON																																
Baker	3369	------	------	--	--	----	-----	--	--	--	--	--	--	36	--	----	-----	----	--	--	---	---	----	SSW	--	---	--	--	--	--	---	--
Baker CO	3446	893.0	1014.1	62	39	50.8	+4.2	81	11	19	1	0	4	--	--	.79	-.12	.24	7	0	0	0	7.1	---	36	SW	27	3	9	19	7.5	52
Burns CO	4143	871.0	1013.5	64	35	49.6	+3.6	83	11	20	2	0	9	34	59	1.02	+.40	.29	9	0	.7	1	----	---	--	---	--	7	6	18	6.8	--
Eugene	364	999.3	1012.9	60	45	52.8	-----	78	7	30	1	0	2	49	88	12.66	-----	2.41	21	1	0	0	7.8	S	--	---	--	1	4	26	8.9	--
Meacham	4050	873.7	1014.1	55	37	46.1	-----	73	11	25	1	0	6	39	78	3.08	-----	.50	19	0	1.4	1	6.0	ESE	--	---	--	3	3	25	8.5	--
Medford	1314	966.1	1013.6	65	44	54.3	+.7	84	12	19	1	0	2	47	81	9.16	+7.75	2.92	17	0	0	0	5.6	S	*40	SE	26	4	5	22	8.1	--
Pendleton	1489	959.4	1013.0	61	44	52.3	+.6	80	8	31	2	0	2	42	72	2.52	+1.40	.77	16	0	0	0	7.5	SE	--	---	--	3	5	23	7.9	--
Portland CO	30	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	8.88	+5.76	----	--	--	---	---	----	---	--	---	--	--	--	--	---	--
Portland	21	1011.2	2012.2	59	46	52.4	-.3	72	7	33	1	0	0	48	86	7.00	-----	1.01	23	1	.2	T	7.3	SE	50	SW	27	1	3	27	9.0	16
Roseburg CO	479	994.2	1012.9	64	48	55.8	+1.9	81	10	34	1	0	0	--	--	12.53	+9.92	3.94	21	0	0	0	3.7	---	29	SW	26	3	4	24	8.3	24
Salem	195	1005.1	1012.5	59	45	51.9	-2.3	77	7	31	1	0	1	48	88	10.74	+7.83	1.59	21	1	0	0	7.7	S	--	---	--	1	2	28	9.1	--
Sexton Summit CO	3836	------	------	54	42	47.8	-----	75	11	30	31	0	3	--	--	13.87	-----	5.20	20	0	T	T	----	---	--	---	--	7	7	22	7.9	--
Troutdale	29	------	------	59	45	52.1	-----	73	12	30	1	0	1	48	86	9.18	-----	1.08	24	2	0	0	7.8	E	*29	SSW	27	1	4	26	9.0	--
PENNSYLVANIA																																
Allentown	381	1004.7	1019.1	68	44	55.8	+2.8	86	1	26	27	0	2	47	78	2.11	-1.19	.80	10	1	0	0	6.5	SW	--	---	--	11	9	11	5.5	--
Curwensville	2215	------	------	62	41	51.5	-----	78	18	29	27	0	5	44	82	5.03	-----	2.07	12	5	0	0	9.8	ESE	*26	WNW	13	11	6	14	5.8	--
Erie	655	------	------	65	51	57.5	+4.1	83	2	39	27	0	0	--	--	3.71	+.02	1.32	12	3	0	0	8.5	---	25	W	12	10	8	13	5.5	46
Harrisburg	335	1005.1	1019.0	66	46	56.3	+1.5	84	2	29	27	0	1	47	77	2.30	-.63	1.02	11	1	0	0	5.2	ESE	28	W	12	10	3	18	6.2	56
Park Place	1932	------	------	62	45	53.4	-----	79	2	28	27	0	1	--	--	4.02	-----	2.37	9	1	0	0	----	---	--	---	--	10	9	12	5.5	--
Philadelphia CO	26	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	--	---	--	--	--	--	---	55
Philadelphia	13	1017.6	1018.8	69	50	59.5	+4.0	85	2	33	27	0	0	50	75	2.16	-.65	1.10	6	0	0	0	8.0	WSW	*35	NW	12	9	7	15	6.0	--
Pittsburgh	1248	987.8	1018.2	67	48	57.4	+3.3	82	18	37	15	0	0	46	71	1.53	-.99	.75	4	3	0	0	8.2	S	34	W	12	6	12	13	6.3	57
Reading	266	1007.1	1019.0	68	48	58.0	+2.6	86	2	30	27	0	1	--	--	2.35	-.77	1.12	4	1	0	0	8.8	---	42	E	9	9	9	13	6.0	51
Scranton	746	989.5	1018.6	66	45	55.4	+3.5	87	2	27	27	0	1	--	--	1.61	-1.42	.68	9	0	0	0	5.7	---	27	NW	13	14	3	9	4.5	61
Williamsport	527	1000.0	1018.9	66	43	54.6	+2.0	81	2	24	27	0	2	45	77	1.40	-2.00	.84	10	0	0	0	5.3	W	*33	WNW	12	8	10	13	6.1	--
RHODE ISLAND																																
Block Island	35	------	------	62	51	56.6	+1.7	78	1	37	27	0	0	--	--	1.14	-2.42	.56	4	1	0	0	----	---	--	---	--	--	--	--	---	--
Providence	55	1012.2	1018.8	65	45	55.2	+4.5	86	1	28	28	0	2	45	74	2.71	-.41	1.84	4	0	0	0	7.7	NW	24	SW	19	12	12	7	4.4	66
SOUTH CAROLINA																																
Charleston CO	9	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	42	E	19	--	--	--	---	53
Charleston	41	1014.5	1016.7	78	58	68.2	+3.0	87	20	43	14	0	0	61	83	2.88	-.39	1.27	9	1	0	0	6.2	NE	--	---	--	8	11	12	6.1	--
Columbia CO	332	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	---	---	----	---	26	NE	5	--	--	--	---	62
Columbia	217	1004.4	1017.2	79	55	66.7	-----	89	4	39	14	0	0	56	77	1.34	-----	.92	5	0	0	0	5.3	NE	--	---	--	16	6	9	4.2	--
Florence	146	1011.9	1017.5	78	56	66.7	-----	88	4	44	14	0	0	57	77	3.16	-----	1.21	8	2	0	0	8.1	NE	--	---	--	11	9	11	5.1	--
Greenville	1006	980.4	1017.6	75	56	65.2	+5.0	84	15	46	10	0	0	53	71	4.47	+1.35	3.98	6	1	0	0	8.9	NNE	36	NE	5	14	7	10	4.4	68
Spartanburg	801	988.5	1018.4	75	55	64.7	+3.3	84	31	45	14	0	0	53	73	3.56	+.31	2.99	8	0	0	0	8.1	NE	32	NE	5	14	9	8	4.2	--

See footnotes at end of table.

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb.*	*Mb*	°F	°F.	°F.	°F.	°F		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			*0—3*	*4—7*	*8—10*	*0—10*	%
SOUTH DAKOTA																																
Huron	1282	967.2	1014.4	65	38	51.6	+3.9	86	30	25	4	0	7	39	71	1.46	+0.18	.77	4	2	T	0	12.0	S	38	S	25	13	9	9	4.9	65
Rapid City	3215	899.8	1014.5	68	40	53.8	+6.2	85	17	27	2	0	5	36	62	.40	-.54	.36	3	0	3.8	4	12.3	NNW	72	NW	7	9	13	9	5.1	72
Sioux Falls	1420	963.4	1015.3	66	40	52.7	+2.6	88	30	25	4	0	5	40	70	1.80	+.24	1.23	4	4	T	0	10.2	S	*35	W	7	17	6	8	4.3	--
TENNESSEE																																
Bristol	1519	963.8	1018.7	73	48	60.8	+2.2	80	15	35	26	0	0	50	73	1.16	-1.46	.32	6	1	0	0	6.2	NE	--	---	--	14	9	8	4.6	--
Chattanooga	670	990.2	1017.7	77	52	64.6	+6.9	85	15	40	13	0	0	55	79	2.20	-.81	1.58	6	1	0	0	3.9	NE	35	NW	8	16	9	6	4.3	63
Knoxville	949	983.1	1018.2	76	52	63.9	+5.3	84	16	40	13	0	0	54	76	1.55	-1.07	.90	5	1	0	0	6.0	NE	25	S	8	13	10	8	4.5	66
Memphis	263	1002.7	1017.2	78	55	66.7	+5.3	87	16	45	5	0	0	56	74	2.39	-1.11	1.83	5	2	0	0	8.3	S	30	N	20	18	9	4	3.6	82
Nashville	577	997.6	1017.5	77	53	64.9	+3.9	88	16	41	26	0	0	54	75	1.65	-.84	1.08	4	1	0	0	5.7	S	27	SW	8	12	11	8	4.7	69
TEXAS																																
Abilene	1752	955.0	1015.0	85	58	71.6	+7.3	91	28	45	23	10	0	50	57	.09	-2.41	.09	1	0	0	0	12.1	S	36	SW	6	23	3	5	2.5	80
Amarillo	3590	889.9	1014.5	79	50	64.6	+8.9	90	29	36	23	1	0	44	57	T	-1.66	T	0	0	0	0	12.3	S	40	S	1	--	--	--	3.2	79
Austin	515	994.6	1015.8	87	61	73.6	+5.3	92	7	53	10	9	0	58	69	.59	-2.60	.59	1	0	0	0	7.2	S	27	NE	18	--	--	--	3.5	78
Big Spring	2533	927.9	1015.6	84	57	70.7	+5.9	92	24	49	22	6	0	49	54	.19	-1.80	.18	2	1	0	0	11.8	S	--	---	--	25	0	6	2.1	--
Brownsville	16	1011.9	1013.9	87	68	77.7	+2.8	91	2	60	22	4	0	67	79	2.23	-1.37	2.04	3	1	0	0	8.7	NE	27	E	4	--	--	--	3.1	77
Corpus Christi	40	1014.6	1015.3	88	67	77.2	+6.1	98	22	57	22	5	0	65	77	T	-2.47	T	0	0	0	0	9.7	SE	26	NE	3	22	8	1	3.6	90
Dallas	487	998.6	1015.9	84	60	71.8	+4.5	91	11	48	9	3	0	56	67	.44	-2.27	.28	2	0	0	0	8.7	SSE	30	SW	26	--	--	--	2.7	76
Del Rio CO	957	981.0	1013.9	87	63	74.9	+4.9	95	7	52	22	9	0	57	59	T	-1.83	T	0	0	0	0	7.3	---	18	N	19	20	7	4	2.6	84
El Paso	3920	886.9	1012.1	86	56	70.7	+8.7	90	11	46	28	2	0	44	42	.94	+.14	.92	2	0	0	0	6.6	S	34	NW	4	--	--	--	2.8	91
Fort Worth	688	992.2	1016.1	84	59	71.8	+6.1	92	26	51	9	3	0	54	63	.30	-2.51	.20	2	0	0	0	14.7	S	36	N	7	--	--	--	2.9	--
Galveston CO	7	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	---	---	---	---	---	---	27	N	18	--	--	--	---	78
Galveston	7	1015.6	1015.9	82	69	75.7	+3.0	89	12	61	22	0	0	66	79	.14	-4.22	.12	3	0	0	0	9.4	SSE	--	---	--	18	11	2	2.8	--
Houston CO	41	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	---	---	---	---	---	---	25	N	18	--	--	--	---	78
Houston	41	1013.5	1015.9	85	61	73.0	+4.1	90	12	53	22	1	0	61	77	.69	-2.52	.59	3	0	0	0	9.6	SE	--	---	--	18	9	4	3.8	--
Laredo	500	1000.0	1014.5	91	67	79.2	+5.5	97	7	57	21	24	0	60	61	T	-2.11	T	0	0	0	0	10.5	SE	--	---	--	--	--	--	2.7	--
Lubbock	3238	904.8	1015.1	81	49	64.9	+3.8	87	26	39	8	0	0	47	63	.14	-2.15	.14	1	0	0	0	10.7	S	33	NNE	7	20	5	6	2.9	--
Palestine CO	491	998.3	1016.3	82	61	71.3	+4.1	88	11	50	10	0	0	--	--	.86	-2.46	.42	6	0	0	0	6.4	---	18	NE	20	17	10	4	3.3	77
Port Arthur CO	5	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	---	---	---	---	---	---	29	NE	17	--	--	--	---	83
Port Arthur	5	1014.9	1015.5	83	59	71.0	-----	90	12	49	10	1	0	61	85	1.30	-----	1.28	2	0	0	0	8.4	N	--	---	--	22	4	5	2.9	--
San Angelo	1903	949.5	1015.5	84	57	70.5	+4.5	91	28	44	9	3	0	51	58	.06	-2.21	.06	1	0	0	0	7.2	S	*23	NNE	19	22	6	3	2.3	--
San Antonio	782	991.5	1015.7	87	60	73.3	+2.8	91	7	50	10	4	0	56	64	.08	-2.15	.08	1	0	0	0	7.3	N	28	NE	19	--	--	--	3.3	--
Victoria	109	1011.2	1015.2	89	63	75.9	+2.8	93	22	54	10	15	0	61	74	.98	-2.26	.86	2	0	0	0	6.3	SE	36	N	18	20	9	2	2.9	--
Waco	504	997.3	1015.2	84	60	72.2	+3.8	92	11	49	9	2	0	57	69	2.00	-.52	1.76	4	0	0	0	6.2	S	--	---	--	18	9	4	3.3	--
Wichita Falls	1027	979.0	1015.2	84	56	70.1	+2.6	93	26	45	23	7	0	51	60	.20	-2.65	.20	1	0	0	0	10.6	SSE	*33	NNE	7	--	--	--	2.3	--
UTAH																																
Milford	5029	846.9	1015.5	76	36	55.8	+6.6	85	12	20	2	0	7	25	34	.20	-.69	.20	1	0	0	0	9.6	S	--	---	--	19	7	5	3.0	--
Salt Lake City	4222	871.0	1013.9	72	44	57.9	+7.1	83	13	31	1	0	3	33	44	.58	-.73	.26	4	0	0	0	8.5	SE	67	NW	27	17	6	8	3.7	80
VERMONT																																
Burlington	398	1002.4	1017.5	60	41	50.5	+1.3	82	2	25	27	0	6	42	75	1.61	-1.36	.47	10	0	T	T	9.9	SSW	31	NW	20	8	8	15	6.4	52
VIRGINIA																																
Cape Henry	16	1017.3	1018.0	70	60	64.8	+2.7	77	31	52	13	0	0	--	--	1.46	-1.55	.86	7	0	0	0	12.0	---	31	NW	13	9	10	12	5.6	66
Lynchburg	947	985.1	1018.8	71	51	60.5	+3.3	84	31	38	27	0	0	50	74	1.87	-1.28	.56	8	0	0	0	8.3	NNE	23	SW	9	13	10	8	4.9	62
Norfolk CO	11	------	------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	---	---	---	---	---	---	25	W	12	--	--	--	---	56
Norfolk	25	1017.3	1018.4	71	56	63.8	+3.9	81	31	44	14	0	0	57	81	2.15	-.89	1.17	8	0	0	0	9.7	NE	--	---	--	8	11	12	5.9	--
Richmond	160	1007.8	1018.7	72	51	61.2	+3.0	85	31	35	27	0	0	54	81	1.77	-----	.49	7	0	0	0	6.5	NNE	25	W	13	8	13	10	5.8	48
Roanoke	1192	976.6	1019.0	72	50	60.9	+3.4	83	31	39	26	0	0	50	74	2.43	-1.39	1.42	6	0	0	0	7.0	SE	--	---	--	10	13	8	5.3	--
Urbanna	31	1018.0	1019.0	71	52	61.7	-----	83	31	36	27	0	0	--	--	1.69	-----	.57	7	0	0	0	---	---	--	---	--	10	9	12	5.8	--
Wash.Nat'l. AP	14	1015.2	1019.2	71	52	61.0	+3.6	87	2	39	27	0	0	52	76	3.59	+.75	1.84	8	1	0	0	8.4	NE	38	W	12	10	8	13	5.8	52
WASHINGTON																																
Ellensburg	1727	950.2	1012.8	56	35	45.6	-2.6	70	7	23	31	0	11	40	79	1.52	+.95	.28	21	0	T	0	6.6	WNW	--	---	--	2	3	26	8.6	--
Kelso	17	------	------	59	42	50.4	-----	74	7	29	2	0	3	--	--	6.52	-----	1.06	20	0	0	0	----	---	--	---	--	1	3	27	9.2	--
North Head CO	194	1002.7	1010.5	56	48	52.1	-.8	62	10	43	30	0	0	--	--	10.66	+5.65	1.67	23	4	T	T	16.3	---	68	SE	25	2	2	27	8.8	14
Olympia	190	1004.1	1011.6	57	41	48.9	-----	70	7	29	1	0	2	46	89	9.20	-----	2.26	22	0	T	T	5.5	SSE	--	---	--	0	3	28	9.1	--
Port Angeles	8	1009.8	1011.0	53	45	48.7	-----	61	7	40	1	0	0	46	89	3.92	-----	.72	19	0	0	0	7.1	W	--	---	--	1	4	26	8.9	--
Seattle	14	1010.6	1011.7	--	--	----	-----	--	--	--	--	--	--	47	83	----	-----	----	--	--	---	---	----	S	--	---	--	--	--	--	---	--
Seattle CO	14	------	------	58	47	52.5	-1.2	72	7	41	22	0	0	--	--	5.47	+2.63	1.02	21	0	T	0	10.0	---	57	SW	27	1	5	25	8.7	19
Spokane	2357	944.1	1013.4	55	39	46.7	-1.6	69	8	25	1	0	5	40	78	4.05	+2.88	.74	19	0	0	0	9.7	SSW	56	SW	27	0	9	22	8.7	31
Stampede Pass CO	3960	874.7	1013.5	43	35	38.4	-----	57	11	27	31	0	14	--	--	10.56	-----	3.06	24	0	15.9	11	11.2	---	61	W	27	2	3	26	8.7	--
Stevenson CO	319	------	------	58	46	51.9	-----	72	11	36	1	0	0	--	--	14.56	-----	1.95	25	1	0	0	----	---	--	---	--	1	2	28	9.1	--
Tacoma CO	127	1004.4	1011.5	57	46	51.3	+.8	73	7	39	24	0	0	--	--	5.32	+1.99	1.18	22	1	0	0	7.7	---	42	SW	25	0	9	22	8.6	22
Tatoosh CO	101	1006.4	1009.6	54	47	50.6	+.7	60	12	42	30	0	0	45	82	12.83	+4.70	2.80	21	2	T	T	17.8	E	63	NE	26	1	6	24	8.5	20
Walla Walla	1200	------	------	--	--	----	-----	--	--	--	--	--	--	45	--	----	-----	----	---	---	---	---	----	SE	--	---	--	--	--	--	---	--
Walla Walla CO	949	977.0	1012.9	62	46	54.0	+.5	82	8	33	1	0	0	--	--	4.20	+2.67	1.30	17	1	0	0	4.5	---	54	SE	26	3	6	22	8.0	33
Yakima	1058	973.2	1012.4	59	37	48.0	-3.7	74	7	23	1	0	9	41	76	2.22	+1.57	.37	19	0	T	T	5.5	W	--	---	--	3	6	22	8.2	--
Seattle-Tacoma AP	379	997.3	1011.5	56	43	49.2	-----	71	7	34	22	0	0	45	88	7.21	-----	1.58	23	0	T	T	9.3	S	--	---	--	1	5	25	8.9	--
WEST VIRGINIA																																
Charleston	950	983.1	------	73	50	61.5	-----	84	21	39	5	0	0	--	--	3.16	-----	1.19	11	3	0	0	6.3	---	*45	WSW	8	9	10	12	5.6	--
Elkins	1969	949.9	1019.6	68	41	54.6	+3.5	83	17	26	27	0	3	46	81	2.69	-.22	.74	10	3	0	0	3.5	WNW	31	W	12	5	10	16	6.9	51
Huntington	565	------	------	77	48	62.5	+9.2	84	12	37	26	0	0	--	--	2.62	-.02	1.19	5	--	0	0	----	---	--	---	--	--	--	--	---	--
Parkersburg	837	------	1018.0	--	--	----	-----	--	--	--	--	--	--	50	--	----	-----	----	--	--	---	---	6.5	SSW	--	---	--	--	--	--	---	--
Parkersburg CO	615	------	------	71	48	59.9	+3.8	83	31	36	26	0	0	--	--	1.21	-1.27	.45	8	1	0	0	----	---	19	NW	12	7	11	13	6.0	49
Petersburg	1013	982.1	------	69	44	56.3	-----	84	31	30	27	0	2	--	--	2.12	-----	.63	10	0	0	0	----	---	--	---	--	8	9	14	6.2	--
WISCONSIN																																
Green Bay	689	990.2	1016.5	62	40	51.1	+2.6	79	18	30	26	0	4	42	72	1.14	-1.40	.56	10	4	0	0	9.4	SW	43	W	2	6	14	11	5.9	59
La Crosse	669	990.5	1015.2	62	43	54.7	+5.6	83	18	26	25	0	2	44	76	.91	-1.41	.65	4	4	0	0	8.9	SSE	32	W	2	--	--	--	4.6	62
Madison	857	984.8	1016.7	67	43	54.7	+5.4	82	18	32	25	0	1	44	76	1.23	-1.20	.89	6	1	0	0	10.5	S	31	W	2	--	--	--	5.0	65
Milwaukee	674	990.9	1016.7	65	46	55.6	+6.1	84	18	34	25	0	0	46	76	.55	-1.80	.39	7	2	0	0	11.0	SW	33	SW	2	10	8	13	5.4	55
WYOMING																																
Casper	5346	836.8	1013.4	67	37	52.3	+4.2	80	12	15	2	0	6	28	45	.74	-.51	.71	3	2	7.7	6	13.8	SW	--	---	--	13	7	11	5.1	--
Cheyenne	6139	812.4	1014.4	68	38	52.7	+7.9	82	12	29	2	0	6	28	43	.25	-.71	.25	1	0	.8	1	11.0	W	47	NW	6	18	7	6	3.3	82
Lander	5563	834.7	1014.8	66	37	51.3	+7.8	79	14	22	2	0	5	29	48	.16	-1.20	.13	3	2	1.1	1	7.6	---	70	SW	6	11	14	6	4.6	64
Rock Springs	6741	795.1	1016.5	64	36	50.3	+5.7	76	12	24	2	0	8	26	44	.31	-.74	.15	4	0	1.6	T	12.7	W	*53	W	27	15	9	7	4.0	--
Sheridan	4021	882.5	1013.6	67	37	51.8	+7.2	82	12	26	24	0	9	34	58	.51	-.56	.18	6	0	2.7	1	8.1	NW	61	SW	27	7	12	12	6.1	69
PACIFIC AREA																																
Canton Island	12	1010.2	1010.5	91	78	84.1	-----	94	20	76	31	25	0	72	73	.16	-----	.14	3	0	0	0	----	---	--	---	--	19	10	2	3.5	--
Hilo	26	1014.2	1015.8	82	66	74.3	-----	85	17	63	21	0	0	66	79	7.17	-----	2.05	20	2	0	0	4.8	SW	--	---	--	7	13	11	6.4	--
Honolulu CO	12	------	------	--	--	77.9	+1.1	--	--	--	--	--	--	---	--	.61	-.94	----	--	--	---	---	----	---	25	NE	8	--	--	--	---	79
Honolulu	7	1015.9	1016.7	85	72	78.5	-----	87	13	68	11	0	0	66	68	.67	-----	.25	10	0	0	0	11.1	ENE	--	---	--	18	11	2	3.6	--
Lihue	115	1011.5	1016.7	83	71	77.4	-----	85	1	66	31	0	0	68	75	1.47	-----	.40	16	0	0	0	10.4	NE	--	---	--	8	21	2	4.9	66
Wake Island	11	1013.9	1014.4	85	77	80.9	-----	86	26	73	4	0	0	74	82	5.06	-----	1.61	23	1	0	0	11.6	ESE	--	---	--	8	9	14	6.4	--
PUERTO RICO																																
San Juan	9	1010.5	1012.3	87	73	80.1	-----	91	3	71	10	3	0	75	88	5.65	-----	1.14	20	9	0	0	6.6	SE	30	E	7	2	23	6	6.1	46

See footnotes at end of table.

Table 2—Continued

OCTOBER 1950

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days Max. 70° F. or above	Temperature: No. of days Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days .01 inch or more	Precipitation: No. of days With thunderstorms	Precipitation: Snow, Sleet, Hail Total	Precipitation: Snow, Sleet, Hail Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile Speed	Wind: Fastest mile Direction	Wind: Fastest mile Date	No. of days (sunrise to sunset) Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
ALASKA																																
Anchorage	134	998.0	1003.1	41	26	33.2	-2.8	54	2	1	30	0	25	28	76	0.52	-1.66	0.32	3	0	T	T	2.2	N	20	NW	23	4	6	21	8.1	23
Annette Island	110	1001.1	1005.4	49	39	44.1	-2.9	60	†1	29	29	0	2	38	77	9.51	-6.57	1.85	21	0	T	T	11.4	ESE	--	---	---	7	0	24	7.5	--
Barrow	22	1007.1	1007.5	26	17	21.2	+4.4	33	19	-1	31	0	31	19	87	.36	-.19	.17	8	0	3.6	3	13.5	ENE	38	E	6	2	2	27	8.8	--
Bethel	21	1000.0	1001.7	39	29	34.0	+2.5	58	3	10	31	0	19	31	86	1.64	-.11	.38	15	0	3.0	1	----	N	*25	SSE	18	[illegible]	4	23	8.0	--
Cordova	40	999.0	1000.7	48	30	38.5	-2.0	60	2	17	28	0	21	33	79	5.82	-7.69	1.93	18	0	12.9	10	2.9	E	--	---	---	5	3	23	8.2	--
Fairbanks	436	987.1	1004.4	34	18	26.0	-.8	52	3	-11	31	0	30	22	80	.51	-.36	.12	13	0	14.0	7	2.6	N	13	NE	8	1	5	25	8.6	36
Galena	120	998.3	1003.1	34	21	27.4	+1.1	56	1	-7	31	0	28	22	77	.26	-.36	.12	7	0	2.8	2	8.6	N	*28	E	22	6	9	16	7.0	--
Gambell	25	999.7	1000.7	37	32	34.8	+3.6	44	1	22	30	0	13	31	89	2.21	+.87	.50	19	0	1.8	T	18.1	NNW	53	SE	18	2	3	26	8.8	--
Juneau	15	1003.3	1004.2	46	31	38.9	-2.4	56	†2	17	30	0	17	34	83	2.71	-5.61	.86	15	0	T	T	5.5	E	31	E	7	7	4	20	7.1	38
Kotzebue	10	1002.4	1003.1	33	25	29.8	+5.0	51	2	9	31	0	26	25	83	.78	+.22	.19	12	0	1.8	---	15.4	E	--	---	---	6	3	22	7.8	--
McGrath	334	990.2	1003.1	36	20	28.1	+.6	59	1	-5	31	0	29	24	79	.44	-1.42	.27	7	0	4.2	1	3.9	N	*17	NNW	28	6	6	19	7.4	--
Nome	13	1000.7	1001.4	40	29	34.3	+4.9	58	2	7	31	0	16	31	81	3.02	+1.44	.57	13	0	T	T	11.3	N	45	SE	18	5	4	22	7.9	19
Northway	1713	941.1	1005.1	32	14	23.0	-2.0	56	1	-10	31	0	31	19	78	.23	-.31	.09	7	0	5.1	7	2.6	ESE	—	---	--	3	6	22	8.4	--
St. Paul Island	22	1000.3	1001.4	43	35	39.1	+.1	48	8	24	27	0	8	37	86	3.21	-.11	----	29	0	2.4	1	----	---	--	---	--	0	6	25	9.0	--
Umiat	337	995.6	------	22	8	14.9	+2.9	36	†1	-13	30	0	31	--	--	.56	-----	.12	13	0	4.6	4	4.1	---	--	---	--	2	11	18	8.3	--
Wales	[illegible]	1002.4	1003.1	37	31	34.4	+4.1	48	2	17	29	0	17	--	--	1.84	+.76	.41	21	0	2.4	2	-----	---	--	---	--	0	0	31	9.8	--
Yakutat	28	1001.6	1002.8	48	32	39.9	-2.2	60	2	19	22	0	14	33	77	6.68	-13.08	1.62	15	0	.8	T	5.8	E	*23	SSE	9	3	8	20	7.7	--

Data from airport unless otherwise specified. CO indicates data from city office.

* Data entered in column headed "Fastest mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

† Other dates also.

HEATING DEGREE DAYS

(Base 65°F.)

Table 3 — OCTOBER 1950

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Birmingham	43	44	122
Mobile (CO)	1	1	45
Mobile	2	2	
Montgomery (CO)	6	6	75
Montgomery	11	12	
ARIZONA			
Flagstaff (CO)	392	834	930
Phoenix (CO)	44	72	
Phoenix	0	0	18
Prescott (CO)	69	120	
Tucson (CO)	0	0	
Winslow	56	84	
Yuma	0	0	9
ARKANSAS			
Ft. Smith	45	50	140
Little Rock	38	52	131
Texarkana (CO)	16	23	
CALIFORNIA			
Bakersfield	22	26	
Beaumont (CO)	49	74	
Bishop	158	204	
Blue Canyon	396	620	
Burbank	19	26	
Eureka (CO)	237	1036	1168
Fresno	41	51	82
Los Angeles (CO)	2	2	49
Los Angeles	42	58	
Mt. Shasta (CO)	443	646	
Oakland	117	254	
Red Bluff	96	104	109
Sacramento (CO)	72	82	116
Sacramento	88	99	
Sandberg (CO)	171	295	
San Diego	5	5	75
San Francisco (CO)	107	615	625
San Francisco	132	405	
San Jose	81	119	
Santa Catalina (CO)	56	205	
Santa Maria	132	347	
COLORADO			
Alamosa	475	1036	
Colorado Springs	227	492	
Denver	159	349	553
Grand Junction	129	198	
Pueblo	155	246	475
CONNECTICUT			
Bridgeport	261	395	
Hartford	215	503	494
New Haven	282	432	443
DELAWARE			
Wilmington	232	348	
DIST. OF COLUMBIA			
Washington (CO)	149	206	295
Washington	143	198	
FLORIDA			
Apalachicola (CO)	0	0	24
Daytona Beach	0	0	
Fort Myers (CO)	0	0	
Jacksonville (CO)	0	0	25
Jacksonville	0	0	
Key West (CO)	0	0	0
Key West	0	0	
Melbourne	0	0	
Miami (CO)	0	0	0
Int. Airport, Hialeah	0	0	
Orlando	0	0	
Pensacola (CO)	0	0	25
Tallahassee	0	0	
Tampa	0	0	6
West Palm Beach	0	0	
GEORGIA			
Albany (CO)	5	6	44
Atlanta (CO)	39	60	140
Atlanta	31	45	
Athens	31	62	
Augusta	20	35	89
Columbus (CO)	14	17	
Macon	11	16	96
Rome (CO)	57	66	
Savannah	6	7	46
Valdosta	3	3	
IDAHO			
Boise	261	422	547
Lewiston	358	495	
Pocatello	386	658	684
ILLINOIS			
Cairo (CO)	59	80	207
Chicago (CO)	186	239	438
Chicago	225	308	
Chicago University	206	287	
Joliet	266	396	
Moline	222	333	
Peoria	191	273	450
Springfield (CO)	133	179	354
Springfield	181	272	
INDIANA			
Evansville	120	168	247
Ft. Wayne	262	401	499
Indianapolis (CO)	160	225	368
Indianapolis	199	291	
South Bend	270	406	
Terre Haute	183	261	
IOWA			
Burlington	211	320	
Charles City (CO)	297	476	676
Davenport (CO)	185	255	443
Des Moines	204	303	463
Dubuque (CO)	234	337	540
Keokuk (CO)	142	199	378
Sioux City	288	420	544
KANSAS			
Concordia (CO)	141	206	360
Dodge City	131	200	338
Goodland	220	373	
Topeka (CO)	109	147	312
Topeka	143	205	
Wichita	99	137	263
KENTUCKY			
Lexington	128	196	310
Louisville (CO)	102	140	253
Louisville	115	156	
Pikeville (CO)	58	85	
LOUISIANA			
Baton Rouge	0	0	45
Lake Charles	0	0	
New Orleans (CO)	0	0	23
New Orleans	0	0	
Int.Airport,Moisant	0	0	
Shreveport	10	12	75
MAINE			
Caribou	687	1332	
Eastport (CO)	513	1106	1103
Greenville (CO)	614	1257	1140
Portland	484	867	724
MARYLAND			
Baltimore (CO)	147	208	267
Baltimore	217	303	
Frederick (CO)	230	315	
MASSACHUSETTS			
Boston	281	434	458
Milton	386	655	
Nantucket	323	521	432
Pittsfield (CO)	458	875	
MICHIGAN			
Alpena (CO)	413	849	915
Detroit	284	415	521
Escanaba (CO)	464	992	966
Grand Rapids (CO)	269	414	578
Grand Rapids	328	554	
Iron Mountain	456	967	
Lansing	339	563	
Marquette (CO)	476	1073	998
Muskegon	353	622	
Sault Ste. Marie	534	1225	1102
Traverse City	401	793	
Ypsilanti	299	438	
MINNESOTA			
Duluth (CO)	565	1168	1100
Duluth	588	1247	
International Falls (CO)	616	1246	
Minneapolis	358	512	679
Rochester (CO)	356	578	
St. Cloud (CO)	479	770	849
St. Paul	352	511	
MISSISSIPPI			
Jackson	17	17	86
Meridian	25	27	105
Vicksburg (CO)	14	15	81
MISSOURI			
Columbia (CO)	130	184	331
Columbia	139	211	
Kansas City	116	155	292
St. Joseph	148	214	
St. Louis (CO)	102	130	254
St. Louis	117	158	
Springfield	120	190	283
MONTANA			
Billings	409	747	798
Butte	673	1558	
Glasgow (CO)	523	886	
Great Falls	486	909	
Havre	531	884	948
Helena	528	997	996
Kalispell (CO)	623	1062	1136
Missoula	569	966	974
NEBRASKA			
Grand Island	255	372	
Lincoln (CO)	131	216	416
Lincoln	232	347	
Norfolk	273	401	
North Platte	288	453	554
Omaha	202	299	413
Valentine (CO)	329	580	673
NEVADA			
Elko	452	780	
Ely	422	830	
Las Vegas (CO)	3	3	73
Reno	355	579	573
Tonopah	449	749	505
Winnemucca	395	642	715
NEW HAMPSHIRE			
Concord (CO)	439	765	753
Mt. Washington	1016	2829	
NEW JERSEY			
Atlantic City (CO)	163	240	289
NEW JERSEY (Cont.)			
Newark	219	319	367
Trenton (CO)	224	343	371
NEW MEXICO			
Albuquerque	20	47	285
Clayton	132	231	
Roswell	36	37	217
Raton (CO)	231	416	
NEW YORK			
Albany	380	619	547
Bear Mountain (CO)	332	583	
*Binghamton (CO)	342	575	648
Buffalo	324	512	578
Canton (CO)	452	798	857
New York (CO)	174	261	327
La Guardia Field	180	267	
Oswego (CO)	357	585	
Rochester	349	547	591
Schenectady (CO)	371	602	
Syracuse	357	582	628
NORTH CAROLINA			
Asheville (CO)	119	173	333
Asheville	175	248	
Charlotte (CO)	47	85	166
Charlotte	60	100	
Greensboro	112	174	
Hatteras (CO)	6	14	62
Raleigh (CO)	61	107	171
Raleigh	83	138	
Wilmington (CO)	14	36	95
Winston-Salem	100	163	
NORTH DAKOTA			
Bismarck	496	823	904
Devils Lake (CO)	598	1023	1100
Fargo	536	810	
Grand Forks	575	902	1029
Pembina			
Williston (CO)	555	976	1011
OHIO			
Akron	310	487	
Cincinnati (CO)	110	156	330
Cincinnati	169	266	
Cleveland (CO)	222	323	468
Cleveland	246	343	
Columbus (CO)	175	246	390
Columbus	224	341	
Dayton	209	318	388
Sandusky (CO)	216	287	440
Toledo	281	412	488
Youngstown	322	512	
OKLAHOMA			
Oklahoma City (CO)	43	50	175
Oklahoma City	41	47	
Tulsa	50	56	
OREGON			
Baker (CO)	434	760	919
Baker	488	895	
Burns (CO)	469	745	
Eugene	373	519	
Meacham (CO)	576	1020	
Medford	326	415	461
Pendleton	385	493	
Portland (CO)	352	466	453
Portland	382	540	
Roseburg (CO)	283	376	481
Salem	403	560	
Sexton Summit (CO)	530	888	
Troutdale (CO)	391	567	
PENNSYLVANIA			
Allentown	290	442	
Curwensville (CO)	414	809	
Erie (CO)	241	360	493
Harrisburg	271	395	388
Park Place (CO)	359	659	
Philadelphia (CO)	166	251	273
Philadelphia	187	281	
Pittsburgh (CO)	204	286	389
Pittsburgh	238	348	447
Reading (CO)	230	337	376
Scranton (CO)	298	483	545
Williamsport	326	504	483
RHODE ISLAND			
Block Island (CO)	256	384	413
Providence (CO)	272	438	481
Providence	303	493	
SOUTH CAROLINA			
Charleston (CO)	3	5	48
Charleston	17	25	
Columbia (CO)	23	44	101
Columbia	35	57	
Florence (CO)	34	67	
Greenville	41	72	141
Spartanburg (CO)	53	79	
SOUTH DAKOTA			
Huron	396	597	691
Pierre	326	500	589
Rapid City	347	656	730
Sioux Falls	375	555	
TENNESSEE			
Briston	139	200	
Chattanooga (CO)	23	26	
Chattanooga	57	68	163
Knoxville	70	97	209
Memphis	48	58	140
TENNESSEE (Cont.)			
Nashville	69	88	190
TEXAS			
Abilene	9	9	106
Amarillo	61	91	266
Austin	0	0	33
Big Spring	3	3	
Brownsville	0	0	8
Corpus Christi	0	0	11
Dallas	5	5	76
Del Rio (CO)	0	0	37
El Paso	0	0	94
Ft. Worth	3	3	84
Galveston (CO)	0	0	14
Galveston	0	0	
Houston (CO)	0	0	
Houston	0	0	28
Laredo (CO)	0	0	
Lubbock (CO)	47	51	
Palestine (CO)	2	2	71
Port Arthur (CO)	0	0	28
Port Arthur	0	0	
San Angelo	8	8	
San Antonio	0	0	32
Victoria (CO)	0	0	
Wichita Falls	12	12	
Waco	1	1	
UTAH			
Milford (CO)	276	423	
Salt Lake City (CO)	177	293	443
Salt Lake City	225	363	529
VERMONT			
Burlington	445	785	813
VIRGINIA			
Cape Henry (CO)	44	64	132
Lynchburg	154	229	270
Norfolk (CO)	47	73	138
Norfolk	66	101	
Richmond (CO)	119	173	224
Richmond	132	192	
Roanoke	142	233	
Urbanna (CO)	116	170	
WASHINGTON			
Ellensburg	597	773	
Kelso (CO)	447	753	
North Head (CO)	393	1125	1085
Olympia	491	853	
Port Angeles (CO)	498	1303	
Seattle (CO)	381	559	671
Seattle	480	813	
Spokane	561	742	721
Stampede Pass (CO)	820	1665	
Stevenson (CO)	400	560	
Tacoma (CO)	418	689	
Tatoosh Island (CO)	442	1387	1342
Walla Walla (CO)	334	411	420
Yakima	520	665	544
WEST VIRGINIA			
Elkins	311	522	556
Huntington	103	144	
Parkersburg (CO)	172	247	346
Petersburg (CO)	272	392	
Charleston	136	201	
WISCONSIN			
Green Bay (CO)	426	828	728
La Crosse (CO)	265	410	640
La Crosse	330	564	
Madison (CO)	292	478	625
Madison	323	522	
Milwaukee (CO)	263	447	565
Milwaukee	293	516	
WYOMING			
Casper	387	763	
Cheyenne	375	833	924
Lander	418	835	958
Rock Springs (CO)	448	785	
Rock Springs	450	885	
Sheridan	403	777	
ALASKA			
Anchorage	981	1923	
Annette Island	643	1466	
Barrow (CO)	1348	3899	
Bethel	958	2056	
Cordova	814	2079	
Fairbanks	1205	2067	
Galena	1157	2022	
Gambell (CO)	929	2851	
Juneau	801	1843	
Kotzebue	1097	2250	
McGrath	1138	2065	
Nome	946	2348	
Northway	1294	2347	
St. Paul	795	2522	
Yakutat	770	1979	
Umiat (CO)	1554	3154	
Wales (CO)	942	2634	

*Binghamton	393	679

Data from airport unless otherwise specified. CO indicates data from city office.

Table 4 OCTOBER 1950

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Boise City, Cimarron County, Okla.	1	9 p.m.	Narrow	15	0	0	$10,000	$15,000	Tornado and hail	Tornado moved through edge of Boise City to a point 15 miles northeastward. Two persons who saw the tornado as it approached Boise City described it as a long, tubular, slightly funnel-shaped cloud with lower end swinging back and forth. Storm did not make a distinctly defined path as the tail of the tornado evidently whipped back and forth, striking the ground at intervals of several hundred feet apart. Damage to growing sorghums estimated at $5,000 by hail and $10,000 by tornado. Several buildings damaged, and about a dozen granaries blown away. Many light structures such as chicken houses, garages, and fences completely destroyed. Oddities concerning this tornado: Person arriving home after tornado found clothe's chute in bathroom cleaned out. Articles of clothing had been sucked from chute to basement, hall, and living room. A pickup truck was lifted through the air and laid to rest with back bumper of pickup hooked onto back bumper of a car. The two vehicles had been parked several yards from each other. Neither vehicle badly damaged. Venetian blinds in one home looked as if someone had grabbed them and twisted them in opposite directions.
Stearns and Renville Counties, Minn.	1						8,000		Electrical	Church chimney at Rockville struck by lightning, damaged roof of the building and three automobiles that were parked nearby. Also, several barns and farmhouses struck by lightning in vicinity of Rockville, causing only minor damage. A cow killed by lightning 2 miles south of Bird Island.
Heron, Mont.	8	Afternoon					See remarks		Wind	Some damage to power and telephone lines.
Tazewell, Claiborne County, Tenn.	8						500	200	Wind, rain, and electrical	One tobacco barn destroyed. Several acres of corn damaged by wind.
Columbus County, N.C.	9	4 a.m.	880	2	0	5	100,000	Minor	Tornado	Storm struck about 14 miles southeast of Whiteville. Three homes destroyed, three damaged, and 14 other buildings destroyed. One person critically injured.
Baltimore, Md.	12	9 a.m.-5 p.m.					10,000		Wind	Scores of trees blown down. Telephone and power services interrupted for short periods in several areas. A 220-foot section of brick wall 32 feet high flattened.
Sandy Point, Md.	12	9 a.m.-5 p.m.					See remarks		do	Two 85-ton steel forms for Chesapeake Bay Bridge that were loaded on barges were blown over. One fell against the other knocking it onto a crane doing considerable damage.
Frederick County, Md.	12	9 a.m.-5 p.m.							Wind and electrical	Wires and trees felled on campus of Mount St. Mary's College in Emmitsburg, Md. Lightning struck a home in Frederick, breaking 50 window panes.
Harrisburg, Pa.	12	Afternoon							Wind	Tree limbs and branches torn off. At least one instance of large limb falling on top of new car, causing much damage.
Polk, Barron, and Rusk Counties, Wis.	16	During day				2	10,000		Electrical	All property damage caused by lightning, and fires started by lightning. Two barns and one small garage burned and two houses damaged by lightning-set fires. Several head of livestock killed by lightning. Telephone and electric services disrupted. Forty-five power line transformers temporarily put out of order, and several poles splintered by lightning.
Merrill (near) Wis.	16	Night					3,000		Electrical	Barn struck by lightning and burned.
Florida, (from Homestead to the Georgia-Florida line and from East Coast inland about 65 miles).	17-18		†65	370	3	199	23,750,000	4,000,000	Hurricane	Hurricane formed over northwestern Caribbean Sea on October 15. After crossing Cuba on night of 16th-17th, it moved north-northwestward over Florida Straits during the 17th, and gained considerable force, but remained very small in diameter. Center passed directly over Miami near midnight of the 17th-18th, with a calm center of only about five miles in diameter. Winds at Miami Weather Bureau Office reached a speed of 97 m.p.h. from northeast for a 5-minute period as center approached, and 122 m.p.h. from south for 1-minute period about fifty minutes later. From Miami, center continued north-northwestward over Lake Okeechobee, then northward nearly parallel to east Florida Coast to Putnam County where course became northwesterly, with center leaving the State in vicinity of Jasper.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Georgia, coastal section	18-19	Midnight 18th-19th - nightfall 19th			1		$200,000	$50,000	Hurricane	Storm entered State between Valdosta and Jacksonvil and moved out of State shortly south of Columbus i a west-northwestward course. It had lost much of i intensity before reaching Georgia, and most of dam occurred on 18th from winds of 30 to 50 m.p.h. and abnormally high tides. No major property damage oc curred in any locality, but the scale of damage on and near the coast was extensive. Some damage, mo ly to crops, resulted from torrential rains.
Baltimore, Md.	23	A.m.				2			Wind and rain	In a collision with another car a tractor-trailer overturned on the Philadelphia road just north of city. The two drivers were slightly injured. Twen nine false alarms set off by wind pressure and sho circuits caused by storm.
California, (northern portion, including San Francisco, and the Central Valley).	26				2	Many	See remarks	See remarks	do	In Napa River Valley large trees uprooted and one l tree crushed a new sedan. Trees fell during a 35-minute period from 2:40 to 3:15 p.m. when 0.75 inc of precipitation fell at Saint Helena. Utilities brunt of the blow. Pacific Gas and Electric Compa crews hard hit when large lines were brought down smaller lines leaving many communities without pow for hours. Some telephone lines also downed. Traf interrupted. Near Salvador, a Southern Pacific fre train had to stop to remove fallen trees from trac A considerable number of trout apparently went up small streams during heavy run-off and were unable get back to Napa River as storm waters receded, an were left to die as waters receded. Storm sewers r able to handle deluge, caused water to rise in st in Saint Helena, and sloshed into some stores; howeve no serious damages reported. In Santa Rosa area strong winds uprooted trees, tor boats from their moorings, and rattled houses to their foundations. In nearly every district of co ty power failures common. By mid-afternoon 22 fis boats beached at Bodega Bay, 400 telephones in San Rosa and all phones served by an estimated 150 rur lines out of order, all but one telephone circuit Ukiah closed; Lakeport, Covelo, Eureka, Kelseyville and Fort Bragg isolated. Broken power lines result in partially or wholly darkening every city in Red-wood Empire. Countless television antennae toppled twisted. Plate glass windows broken. At Auburn, strong winds did extensive damage to tree power lines, and telephone lines. A number of buil ings and homes suffered minor damage from falling limbs. Major damage occurred at Auburn Airport wh a small hangar was blown down and two planes were wrecked. In Colusa district one-third of rice crop which was unharvested sustained approximately a five percent loss. Total storm damages to crops and property es timated at $140,000. In Woodland district tomato picking brought to an en however, only a small tonnage was left in fields. Olives shattered from trees. Some alfalfa seed los Total losses estimated at $29,500. Damage amounting to thousands of dollars caused in Yolo County when strong winds blew down trees and b unroofed houses, and disrupted power and communicat services. Four men narrowly escaped injury, but 15 sheep were killed when large barn collapsed. In San Francisco Bay Region 15 army barges, 5 yacht a houseboat, and a barge were blown onto mudflats. Two freighters dragged anchors and bumped each othe however, damages slight. The American President Lines, "President Johnson" returned to San Francis after several deck plates were torn loose. In San Francisco many trees forced down, basements flooded and power interrupted. In Berkely a 100-pound chunk of marble fell 306 feet from Campanile Tower at University of California, an strong winds carried it 100 feet away. Huge boulde loosened by rain fell onto roadway at Waldo approac to Golden Gate Bridge. One boulder smashed into an automobile. In Sacramento area trees downed and communications di rupted. Winds of about 75 m.p.h. completely shredde a huge revival tent, on State Fair Grounds, valued at $75,000. Total losses in Sacramento district estim at $250,000. Wind speed of 34 m.p.h. in City of Sacramento was strongest October "southeaster" since 1904. Outlying districts reported gusts to 75 m.p.h Precipitation heavy in all districts, and both alfal hay and seed harvesting operations terminated for season. Strong winds accompanying rains forced many trees dow at Red Bluff speeds of 40 to 46 m.p.h. with gusts up 63 m.p.h. reported. Walnut, olive, and other harvest operations interrupted, and soils became too wet for field operations.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Boise County (remote mountainous area about 50 miles northeast of Boise), Idaho	26-27	Afternoon of 26th							Snow	Seven hunters marooned by snow, necessitating use of snow plows and bulldozer to clear path for their rescue. Their autos and truck abandoned for the winter.
Idaho, throughout State	26-27	Evening of 26th					See remarks	See remarks	Wind	Began in southwestern portion, and moved across entire State during next 24 hours. Wind speed of 56 m.p.h. at Boise equalled all-time record. Some damage to buildings and crops in Adams County. Fence and scoreboard at Boise baseball park blown down. Numerous trees toppled or large branches broken. Several chimneys blown down. Roof blown off power plant at Horseshoe Bend. Power and telephone lines broken in several places, causing temporary cessation in service. Sea-level pressure of 29.20 at Boise was 0.21 lower than previous record for October.
Washington, entire State	26-27	Early forenoon 27th				2	*$200,000	*	do	Accompanying a marine disturbance that advanced inland on 26th with moderately heavy rainfall, high south to southwest winds did extensive damage in many parts of State. Extreme wind speed at Seattle was 57 m.p.h. from southwest at 8:02 a.m. on 27th and at Spokane 56 m.p.h. from southwest. Principal damage was to property, such as trees uprooted, occasional roof destruction, telephone and power lines demolished, and plate-glass windows, especially in eastern Washington cities, broken. Damage for Spokane City area, where wind speed equalled the former record, was estimated at $50,000. Similarly at Richland, extensive damage occurred to roof and window structures, trees, and electrical lines, with damage, also, placed at $50,000. Smaller damage, unestimated, occurred in many eastern Washington localities. Some unestimated loss occurred to eastern apple crops, especially in southeastern counties, where unpicked apples suffered up to 50 percent loss. At Seattle trees blown down in considerable number, power and telephone services heavily disrupted, and many plate-glass windows broken. An automobile with two occupants crushed by a falling tree, both persons in car being seriously injured. Damages at Seattle and other Puget Sound cities estimated at $40,000 to $50,000.
Oregon, entire State	26-29				7		1,000,000	$1,000,000	Winds and rains	Effect of the storm felt over entire State. Most severe damage along coast and in southwestern part. Characterized by record-low barometric pressures, high winds, heavy rains, and extensive flooding in many western streams. Five persons drowned in flooding streams and two deaths from injuries suffered when a wind-felled tree landed on car.
Sheridan, Johnson, and Campbell Counties, Wyo.	27	Afternoon					250	6,000	Wind	Damage confined to stacked and baled hay and telephone and light poles.
Blackleaf, Mont.	27								do	Some damage to hay stacks.
Edgar, Mont.	27								do	Damage to straw piles and hay stacks.
Kalispell, Mont.	27						See remarks		do	Trees blown down across mountain roads and telephone and power lines.
Wisdom, Mont.	27								do	Blew down dead timber, blocking forest trails.
Lakeview, Mont.	29								do	Slight damage.
Penobscot County, (northern portion), Me.	30	4-5 p.m.					1,200		Electrical	Barn destroyed near Prentiss; minor local damage in vicinity.
Strafford County, (southern portion), N.H.	30	12-1 a.m.							Electrical and hail	Many bolts of lightning struck in immediate vicinity of Durham; damage light and scattered.

See footnotes at end of table.

SEVERE STORMS

(RECEIVED TOO LATE TO BE PLACED IN CHRONOLOGICAL ORDER)

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Latrobe, Pa.	28	4 a.m.					Several hundred dollars		Electrical	Lightning struck a home, damaging outside and inside walls, fuses, television installation and possibly set.
Derry, Pa.	28	3:15 a.m.							do	Lightning struck a home, tearing hole in slate roof and burning out a radio, electric bulbs, and switch boxes. Owner showered with glass when light bulb over bed was shattered.

PRELIMINARY TOTALS BY STORM TYPES FOR OCTOBER 1950

Type	Deaths	Injuries	Damage
Tornado	0	5	$ 120,000
Wind, other than Hurricanes and Tornadoes	4	Many	1,799,750
Hail			5,000
Electrical		2	22,700
Rain and Floods	5	Many	836,200
Hurricane	4	199	28,000,000
Total	13	206	$30,783,650

† Miles instead of yards.
* Crop damage and property damage.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

OCTOBER 1950

There was very little flooding during October. The most important and severe flooding occurred near the end of the month in the coastal streams of northern California and southwestern Oregon. Considerable property damage resulted from the severe flooding and several lives were lost. Moderate to severe overflow occurred in the Big Blue, Little Blue and Republican Rivers in Nebraska and Kansas earlier in the month.

ST. LAWRENCE DRAINAGE.--A flash flood occurred in the upper portion of the St. Marys Basin at Decatur, Ind., on the 10th and 11th due to unusually heavy rains. No flooding occurred elsewhere in the basin due to the dry condition of the soil.

MISSOURI BASIN.--Rainfall totalling 4.6 inches at Creighton, Nebr., on the 1st and 2d caused some overflow along Bazile Creek which empties directly into the Missouri. The rainfall along the Elkhorn at Ewing, Nebr., totalled 3.88 inches on the 1st and resulted in some overflow along a few local creeks. No property damage resulted.

Moderate to severe overflows occurred in the Big Blue River and in portions of the Little Blue River and Republican River in Nebraska and Kansas between the 2d and 5th due to heavy thundershowers (2-3 inches) on the 1st. In Clay County in Kansas inundated areas in the Republican River Valley were about 2 miles wide near Clifton and between 1/3 and 1/2 mile wide from Morganville downstream to the county line. The Big Blue River crest at Blue Rapids, Kans., of 31.7 feet, 11.7 feet above bankfull stage, was the second highest since 1945. Ten dwellings were partially flooded in lower portions of Marysville and Blue Rapids, with flood waters reported reaching a similar number downstream.

Preliminary estimates of flood damages indicate that severe losses were confined to the lower portions of the Big Blue Basin. Heavy damage occurred locally on the lower Republican. Light to moderate losses resulted in the Little Blue River Basin. Light to moderate flooding occurred in the Solomon, Saline and the upper portions of the Kansas and Little Blue Rivers. No significant losses were reported.

ARKANSAS BASIN.--Some flooding occurred along low places in the Arkansas at Great Bend, Kans., between the 4th and 6th due to heavy rains. No damage resulted.

PACIFIC COAST DRAINAGE.--Some flooding occurred along the Eel River at Fernbridge, Calif., between the 28th and 30th due to heavy rains (7 inches). This was the first time any flooding had occurred during the month of October. Some damage resulted to county roads and bridges.

A severe flash flood occurred in the Umpqua River Basin in southwestern Oregon on the 29th and 30th. It was one of the greatest floods of record since 1861 and by far the most destructive. The high water was due to heavy rain on the 28th and 29th. Seven inches of rain was recorded at Roseburg, Oreg., during this period. This same storm caused flooding along streams and creeks in the Rogue Basin in Oregon and along the Smith River in northwestern California. The latter river reached its highest stage in 40 years. Severe damage resulted from the flooding, the greatest damage being at Roseburg, Oreg., on the Umpqua and along the Smith River Basin.

The flooding in the Columbia Basin in the upper and middle Willamette and principal tributaries of these reaches was due to extremely heavy rain between the 27th and 30th. There was very little contribution from snow melt due to the earliness of the season as very little snow had accumulated. This flood was one of the earliest known in the Willamette and Santiam Basins and was comparable to those occurring in late November and December. Only light damages resulted from the flooding.

PUGET SOUND DRAINAGE.--Some flooding occurred along the Snoqualmie and Snohomish Rivers in Washington on the 10th and 11th due to moderately heavy rains between the 4th and 11th. Only minor damage resulted.

FLOOD STAGE DATA

Table 5

(All dates in October unless otherwise specified.)

OCTOBER 1950

River and station	Flood stage	Above flood stages -dates		Crest *	
		From-	To-	Stage	Date
	Ft.			Ft.	
ST. LAWRENCE DRAINAGE					
St. Marys: Decatur, Ind.	13	10	11	16.4	10
MISSISSIPPI SYSTEM					
Missouri Basin					
Saline: Wilson, Kans.	12	3	3	13.9	3
Solomon:					
Beloit, Kans.	18	3	4	25.1	4
Minneapolis, Kans.	26	2	3	28.0	3
Niles, Kans.	24	3	5	27.1	4
Republican:					
Clay Center, Kans.	15	2	3	19.5	2
Wakefield, Kans.	11	3	3	11.8	3
Little Blue:					
Endicott, Nebr.	9	2	4	11.5	2
				11.8	3
Hanover, Kans.	14	2	4	19.6	3
Big Blue:					
Barnston, Nebr.	18	2	3	26.7	2
Blue Rapids, Kans.	20	2	5	31.7	3
Randolph, Kans.	22	2	5	26.8	4
Kansas:					
Manhattan, Kans.	17	3	5	19.7	4
Wamego, Kans.	16	4	5	16.7	4
Arkansas Basin					
Arkansas: Great Bend, Kans.	8	4	6	9.5	5
PACIFIC SLOPE DRAINAGE					
Eel: Fernbridge, Calif.	17.5	28	30	21.0	29
Columbia Basin					
McKenzie:					
Leaburg, Oreg.	12	28	30	18.5	29
Coburg Bridge, Oreg.	11	29	30	14.5	29
Santiam: Jefferson, Oreg.	13	29	31	18.9	29
Willamette:					
Eugene, Oreg.	12	29	30	15.9	29
Harrisburg, Oreg.	12	29	Nov. 1	18.1	29
Corvallis, Oreg.	20	30	Nov. 1	25.2	30
Albany, Oreg.	20	30	Nov. 1	26.0	31
Salem, Oreg.	20	31	Nov. 1	21.1	31
Oregon City, Oreg.	12	Nov. 1	Nov. 2	13.2	Nov. 2
PUGET SOUND					
Snoqualmie: Tolt, Wash.	51.5	10	11	52.8	11
Snohomish: Snohomish, Wash.	23.6	10	11	24.1	10

* Provisional.

RADIOSONDE DATA

Average monthly values

Table 20 — OCTOBER 1950

Standard pressure surface (mb)	ALBANY, N. Y. (1008 MB.)				ALBUQUERQUE, N. MEX. (839 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	86	9.5	83	31	1,620	19.3	29
1,000--	31	151			31	75		
950----	31	586	10.6	66	31	539		
900----	31	1,028	8.1	66	31	1,014		
850----	31	1,499	6.2	59	31	1,509		
800----	31	1,994	4.3	53	31	2,033	19.4	24
750----	31	2,522	2.2	48	31	2,592	15.5	25
700----	31	3,073	- 0.3	42	31	3,164	10.6	30
650----	30	3,661	- 3.5	43	31	3,782	5.3	35
600----	30	4,285	- 7.3	41	31	4,423	0.1	41
550----	29	4,963	-11.6	36	31	5,117	- 4.5	36
500----	29	5,680	-16.4		31	5,858	- 9.2	
450----	28	6,468	-22.0		31	6,673	-14.8	
400----	27	7,320	-28.3		31	7,546	-21.5	
350----	26	8,261	-36.0		31	8,515	-28.7	
300----	26	9,314	-42.9		31	9,600	-37.2	
250----	26	10,525	-49.6		31	10,834	-46.6	
200----	25	11,970	-55.3		30	12,277	-56.1	
175----	22	12,834	-57.3		30	13,116	-61.0	
150----	20	13,818	-59.8		29	14,058	-65.9	
125----	18	14,950	-62.0		29	15,152	-70.1	
100----	15	16,320	-62.5		22	16,468	-71.9	
80-----	7	17,689	-62.5		18	17,785	-70.0	
60-----					8	19,491	-64.0	
50-----					5	20,628	-61.5	
40-----								

Standard pressure surface (mb)	ATLANTA, GA. (982 MB.)				BIG SPRING, TEX. (927 MB.)				BISMARCK, N. DAK. (954 MB.)				BOISE, IDAHO (913 MB.)				BROWNSVILLE, TEX. (1014 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	307	17.4	78	31	784	20.7	48	31	505	8.1	69	31	868	13.3	49	31	6	23.9	79
1,000--	31	116			31	116			31	107			31	90			31	126	24.9	74
950----	31	594	18.7	67	31	570			31	541			31	531			31	577	22.3	69
900----	31	1,054	16.0	65	31	1,041	22.7	41	31	987	10.2	52	31	990	16.2	38	31	1,045	19.9	59
850----	31	1,538	13.7	59	31	1,535	19.6	41	31	1,460	7.9	53	31	1,474	13.8	36	31	1,536	17.1	55
800----	31	2,048	12.1	48	31	2,054	16.3	37	31	1,958	5.6	50	31	1,981	10.1	40	31	2,051	14.4	49
750----	31	2,593	9.9	41	31	2,602	12.6	36	31	2,493	3.1	48	31	2,521	6.1	44	31	2,597	11.9	42
700----	31	3,157	7.0	37	31	3,174	8.6	35	31	3,040	0.4	47	31	3,075	1.8	50	31	3,169	9.1	38
650----	31	3,765	3.4	37	31	3,785	4.8	33	31	3,641	- 3.0	48	31	3,673	- 2.5	54	31	3,784	6.0	31
600----	31	4,406	- 0.6	35	31	4,431	1.1		31	4,261	- 6.9	55	31	4,298	- 6.7	57	31	4,431	2.6	
550----	30	5,102	- 4.6	32	31	5,126	- 3.1		31	4,943	-11.1	51	30	4,978	-10.7	53	30	5,130	- 1.2	
500----	29	5,839	- 9.8		31	5,874	- 8.1		31	5,660	-16.0	47	30	5,700	-15.3	50	30	5,883	- 6.2	
450----	29	6,653	-15.4		31	6,685	-13.9		31	6,456	-21.7	42	30	6,490	-20.5	48	30	6,704	-11.9	
400----	29	7,523	-21.9		30	7,568	-20.6		31	7,303	-27.7	37	29	7,343	-26.9	46	30	7,590	-18.3	
350----	28	8,490	-29.2		30	8,541	-27.8		31	8,248	-35.3		29	8,291	-34.1	45	30	8,572	-25.5	
300----	27	9,576	-36.8		30	9,630	-35.8		31	9,304	-43.2		29	9,351	-42.2		30	9,672	-33.4	
250----	24	10,820	-44.6		30	10,873	-45.0		31	10,511	-50.9		29	10,560	-50.7		29	10,925	-42.9	
200----	24	12,282	-54.2		30	12,331	-55.4		31	11,945	-55.8		26	11,997	-55.8		28	12,392	-54.2	
175----	23	13,128	-59.4		30	13,171	-61.1		31	12,793	-56.9		24	12,849	-57.0		25	13,237	-60.4	
150----	22	14,074	-64.5		29	14,118	-67.2		31	13,765	-58.5		22	13,818	-59.1		23	14,178	-66.8	
125----	18	15,183	-69.2		27	15,202	-71.8		30	14,910	-60.0		13	14,949	-59.7		22	15,264	-72.3	
100----	15	16,493	-70.8		21	16,507	-74.8		27	16,308	-60.0		6	16,304	-59.7		21	16,559	-75.5	
80-----	11	17,828	-68.7		14	17,805	-72.1		26	17,703	-60.0						16	17,849	-71.7	
60-----	6	19,551	-64.0		7	19,500	-63.0		22	19,496	-58.8						9	19,588	-64.8	
50-----									13	20,638	-57.6									
40-----									5	22,029	-56.6									

Standard pressure surface (mb)	BUFFALO, N. Y. (991 MB.)				BURRWOOD, LA. (1015 MB.)				CAMAGUEY, CUBA (1000 MB.)				CARIBOU, MAINE (994 MB.)				CHARLESTON, S. C. (1016 MB.)				CIUDAD VICTORIA, MEX. (975 MB.)				COLUMBIA, MO. (988 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	28	221	11.6	81	31	3	22.0	87	21	122	23.2	96	31	191	5.2	81	31	13	17.8	91	28	335	25.5	60	31	239	16.4	84
1,000--	28	141			31	131	22.7	76	21	126	23.2	96	31	139			31	147	20.8	75	28	112			31	134		
950----	28	579	12.2	70	31	578	20.5	66	21	582	22.9	81	31	563	5.9	66	31	594	18.8	70	28	571	25.2	53	31	579	18.6	51
900----	28	1,024	10.6	60	31	1,043	18.1	55	21	1,046	20.3	76	31	1,002	4.2	61	31	1,053	16.4	65	28	1,039	21.4	59	31	1,037	16.1	50
850----	28	1,498	8.0	56	31	1,531	15.9	50	21	1,539	17.5	75	31	1,465	1.9	57	31	1,538	14.3	55	28	1,531	16.9	66	31	1,522	14.4	42
800----	28	1,996	5.8	52	31	2,044	13.8	42	21	2,055	14.3	74	31	1,952	- 0.0	58	31	2,048	11.6	51	28	2,045	12.9	71	31	2,028	12.1	37
750----	28	2,525	3.2	46	31	2,588	10.8	41	21	2,597	11.2	73	31	2,475	- 2.0	55	31	2,593	9.4	43	28	2,592	9.9	65	31	2,576	9.5	32
700----	28	3,079	0.6	46	31	3,157	7.9	34	21	3,172	8.2	67	31	3,013	- 4.2	52	31	3,156	6.7	38	28	3,158	7.8	50	31	3,138	6.5	31
650----	28	3,674	- 2.5	43	31	3,770	4.9	30	20	3,785	4.9	63	31	3,604	- 6.4	49	31	3,765	3.4	35	27	3,775	4.8	45	31	3,747	2.8	30
600----	28	4,302	- 6.3	41	31	4,414	1.5	27	19	4,430	1.2	58	31	4,218	- 9.8	47	31	4,406	- 0.7	35	27	4,416	1.2	39	30	4,386	- 1.5	32
550----	27	4,971	-10.5		31	5,113	- 2.9		19	5,125	- 2.9	62	31	4,890	-13.7	47	31	5,099	- 5.3	33	27	5,114	- 2.6		29	5,072	- 5.9	28
500----	27	5,698	-15.1	34	31	5,858	- 7.7		19	5,875	- 6.9	56	31	5,603	-18.2	42	31	5,836	-10.0	32	27	5,862	- 6.9		29	5,814	-10.8	
450----	27	6,485	-20.4	34	30	6,677	-13.5		19	6,694	-12.1		31	6,386	-23.3	40	31	6,644	-15.7		27	6,684	-12.2		29	6,616	-16.5	
400----	26	7,350	-27.0	33	29	7,560	-19.5		18	7,581	-18.0		31	7,234	-29.3	39	31	7,520	-22.0		27	7,569	-18.7		29	7,490	-23.3	
350----	25	8,292	-34.6		29	8,538	-26.5		17	8,566	-24.7		31	8,174	-36.0	43	31	8,488	-29.2		26	8,552	-25.5		29	8,452	-30.7	
300----	25	9,351	-42.6		29	9,633	-34.7		17	9,669	-33.0		31	9,228	-42.9		31	9,570	-37.4		25	9,650	-33.5		29	9,528	-38.8	
250----	24	10,566	-50.7		29	10,879	-44.0		17	10,925	-43.4		30	10,443	-49.0		31	10,805	-46.2		24	10,907	-43.1		29	10,756	-47.2	
200----	20	12,013	-54.9		29	12,342	-54.4		16	12,385	-56.3		29	11,886	-54.0		31	12,259	-52.8		24	12,373	-54.8		29	12,205	-55.1	
175----	19	12,874	-57.4		28	13,183	-59.8		16	13,220	-63.3		29	12,740	-55.1		31	13,105	-58.8		24	13,214	-61.2		29	13,049	-58.9	
150----	15	13,850	-59.0		28	14,133	-65.5		16	14,151	-70.4		26	13,717	-55.9		29	14,061	-63.6		24	14,157	-67.4		26	14,007	-62.4	
125----	13	15,009	-62.2		27	15,226	-71.0		14	15,224	-75.7		18	14,854	-56.3		27	15,167	-67.7		20	15,235	-72.9		25	15,121	-65.7	
100----	9	16,393	-63.8		21	16,522	-73.6		11	16,515	-76.2		13	16,267	-57.9		22	16,512	-69.1		11	16,526	-75.5		22	16,468	-66.5	
80-----	8	17,764	-63.1		11	17,827	-70.1		5	17,790	-73.4						17	17,849	-66.2		8	17,831	-71.7		11	17,804	-65.5	
60-----	6	19,525	-62.0		5	19,582	-63.6										10	19,651	-61.1		6	19,563	-65.8		5	19,526	-61.2	
50-----																	8	20,812	-59.0		5	20,669	-62.8		5	20,664	-58.8	

Standard pressure surface (mb)	DODGE CITY, KANS (925 MB.)				EL PASO, TEX. (882 MB.)				ELY, NEV. (809 MB.)				GLASGOW, MONT. (937 MB.)				GRAND JUNCTION, COLO (852 MB.)				GREAT FALLS, MONT. (884 MB.)				GREENSBORO, N. C. (987 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	792	15.7	55	31	1,195	22.0	38	31	1,908	10.5	30	31	648	8.0	65	31	1,474	15.0	28	31	1,128	9.0	56	31	273	14.5	84
1,000--	31	118			31	84			31	88			31	102			31	87			31	89			31	163		
950----	31	564			31	547			31	539			31	535			31	540			31	526			31	603	16.1	67
900----	31	1,027	19.1	44	31	1,023			31	1,005			31	981	9.3	51	31	1,007			31	978			31	1,059	13.8	65
850----	31	1,517	18.9	37	31	1,520	23.4	30	31	1,487			31	1,453	7.1	47	31	1,497	16.0	26	31	1,452	8.9	52	31	1,540	11.4	65
800----	31	2,033	15.8	34	31	2,045	19.4	33	31	2,001	14.5	26	31	1,949	4.5	50	31	2,016	17.3	22	31	1,951	5.6	53	31	2,045	9.3	60
750----	31	2,582	12.6	33	31	2,599	14.7	38	31	2,548	11.3	27	31	2,479	1.4	53	31	2,566	13.0	24	31	2,485	2.3	55	31	2,586	8.1	45
700----	31	3,154	9.0	30	31	3,175	10.2	41	31	3,114	6.7	33	31	3,024	- 1.9	55	31	3,136	8.4	27	31	3,030	- 1.4	54	31	3,146	5.0	41
650----	31	3,766	5.0	30	31	3,789	5.6	43	31	3,720	1.9	37	31	3,616	- 5.6	55	31	3,746	3.4	32	31	3,623	- 5.0	51	31	3,753	1.6	36
600----	31	4,410	0.3	30	31	4,436	1.1	41	31	4,358	- 2.9	42	31	4,233	- 9.3	52	31	4,385	- 1.7	34	31	4,241	- 9.1	52	31	4,388	- 1.8	34
550----	30	5,101	- 4.5		31	5,134	- 3.1	35	31	5,045	- 7.0	38	31	4,905	-13.3	48	31	5,075	- 7.0	37	31	4,915	-13.1	46	31	5,077	- 5.9	
500----	29	5,843	- 9.6		31	5,879	- 7.8		31	5,780	-11.7	32	31	5,620	-17.8	43	31	5,808	-11.8	31	31	5,628	-18.0	44	31	5,815	-10.8	
450----	29	6,647	-15.6		30	6,697	-13.3		31	6,584	-17.3	29	31	6,405	-23.1	41	31	6,613	-17.3		31	6,414	-23.2	46	31	6,624	-16.6	
400----	29	7,526	-22.1		30	7,578	-19.7		31	7,451	-23.7		31	7,254	-29.1	42	31	7,477	-23.8		31	7,260	-29.4	50	31	7,491	-23.2	
350----	27	8,496	-29.5		30	8,556	-26.9		31	8,411	-31.1		30	8,193	-35.9		31	8,438	-31.0		31	8,199	-36.6	51	31	8,454	-30.5	
300----	27	9,577	-37.6		22	9,647	-34.8		31	9,486	-39.2		29	9,239	-43.6		31	9,513	-39.0		30	9,259	-44.0		31	9,530	-38.5	
250----	26	10,809	-46.4		27	10,897	-43.9		30	10,715	-48.1		28	10,439	-51.2		31	10,739	-47.5		28	10,459	-51.9		30	10,754	-47.5	
200----	25	12,261	-55.1		25	12,368	-54.4		30	12,156	-56.3		28	11,872	-55.6		31	12,185	-55.7		24	11,871	-56.5		30	12,203	-54.8	
175----	25	13,104	-59.4		23	13,209	-60.4		30	12,997	-59.6		27	12,726	-56.4		27	13,036	-59.6		24	12,717	-57.2		28	13,046	-59.0	
150----	24	14,056	-63.8		23	14,157	-66.0		29	13,948	-62.8		27	13,701	-57.8		23	13,990	-62.6		24	13,682	-58.2		28	14,004	-62.8	
125----	23	15,161	-67.7		21	15,241	-71.3		29	15,064	-65.0		25	14,855	-58.2		14	15,105	-64.8		15	14,829	-57.9		24	15,113	-66.3	
100----	16	16,485	-69.4		18	16,552	-74.0		26	16,419	-65.9		23	16,262	-58.9		8	16,451	-68.3		12	16,225	-58.0		24	16,457	-67.9	
80-----	11	17,801	-67.6		12	17,850	-71.2		19	17,791	-64.7		17	17,668	-58.6		5	17,758	-66.1		9	17,641	-58.9		18	17,794	-67.4	
60-----	5	19,560	-60.5		8	19,559	-63.4		5	19,486	-60.5														9	19,524	-63.8	
50-----					6	20,672	-61.2																		8	20,652	-60.2	

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb.)	HATTERAS, N. C (1017 MB.)								HILO, T H (1014 MB.)								INTERNAT FALLS, MINN (970 MB.)							
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	3	19.5	86					31	9	25.2	73	26	361	7.3	80	31	179	11.7	79	31	5	19.7	82
1,000	31	149	19.3	80					31	132	24.0	74	26	109			31	139			31	137	22.3	69
950	31	597	17.3	73					31	586	20.4	77	26	537	9.0	70	31	578	14.8	56	31	585	20.6	63
900	31	1,050	14.8	69					31	1,045	16.8	81	26	981	7.7	70	31	1,030	12.9	51	31	1,049	18.1	59
850	31	1,532	12.4	64					31	1,531	13.6	81	26	1,451	5.9	65	31	1,509	11.1	42	31	1,537	16.0	53
800	31	2,039	9.8	53					31	2,040	11.7	69	26	1,946	4.0	58	31	2,013	9.1	36	31	2,050	13.5	49
750	31	2,583	7.6	44					30	2,590	10.4	48	26	2,477	1.9	56	31	2,549	6.3	38	31	2,597	10.9	43
700	31	3,139	5.1	36					30	3,152	8.0	36	26	3,023	- 1.2	54	31	3,107	3.1	39	31	3,163	7.9	36
650	31	3,743	2.0	34					30	3,765	5.4		26	3,617	- 4.4	54	31	3,711	- 0.3	37	31	3,778	4.7	35
600	31	4,382	- 2.0	33					30	4,411	1.9		26	4,236	- 8.0	49	31	4,340	- 4.0	36	31	4,419	1.0	29
550	31	5,070	- 6.4	29					30	5,109	- 2.4		26	4,911	-12.4	50	31	5,024	- 8.1		31	5,117	- 3.2	27
500	31	5,806	-11.3	29					30	5,857	- 7.5		26	5,629	-16.8	45	31	5,755	-13.1		31	5,860	- 7.5	
450	31	6,612	-17.1						30	6,677	-12.9		26	6,418	-22.0	45	31	6,552	-18.9		31	6,675	-13.2	
400	31	7,480	-23.2						30	7,558	-19.5		26	7,267	-28.0	44	31	7,415	-25.5		30	7,557	-20.0	
350	31	8,442	-30.4						30	8,534	-27.2		26	8,212	-34.8	42	31	8,369	-32.9		30	8,532	-27.4	
300	31	9,519	-38.6						30	9,624	-35.8		26	9,271	-42.5		30	9,434	-40.9		30	9,622	-35.4	
250	30	10,743	-47.0						29	10,866	-45.5		26	10,479	-51.0		28	10,660	-49.9		29	10,866	-44.7	
200	30	12,194	-54.8						29	12,317	-56.6		25	11,915	-55.6		24	12,116	-56.0		27	12,326	-54.9	
175	30	13,041	-58.4						27	13,154	-62.4		22	12,779	-56.5		24	12,960	-58.7		26	13,171	-60.4	
150	29	14,007	-62.8						22	14,094	-67.4		17	13,746	-56.0		22	13,925	-61.6		25	14,115	-66.1	
125	26	15,125	-66.4						17	15,171	-71.9		12	14,889	-57.3		16	15,054	-64.5		23	15,209	-71.4	
100	24	16,471	-68.2										8	16,288	-58.5		11	16,411	-65.2		17	16,503	-73.5	
80	16	17,820	-66.0										5	17,679	-58.1						11	17,818	-71.2	
60	6	19,605	-62.9																		7	19,554	-65.4	
50																					6	20,667	-61.8	
40																					5	22,044	-58.9	

Standard pressure surface (mb.)	JOLIET, ILL. (995 MB.)				LAKE CHARLES, LA. (1015 MB.)				LANDER, WYO. (828 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	179	11.7	79	31	5	19.7	82	31	1,696	10.7	46
1,000	31	139			31	137	22.3	69	31	90		
950	31	578	14.8	56	31	585	20.6	63	31	536		
900	31	1,030	12.9	51	31	1,049	18.1	59	31	998		
850	31	1,509	11.1	42	31	1,537	16.0	53	31	1,478		
800	31	2,013	9.1	36	31	2,050	13.5	49	31	1,988	13.1	36
750	31	2,549	6.3	38	31	2,597	10.9	43	31	2,528	9.5	37
700	31	3,107	3.1	39	31	3,163	7.9	36	31	3,095	5.2	39
650	31	3,711	- 0.3	37	31	3,778	4.7	35	31	3,700	0.7	41
600	31	4,340	- 4.0	36	31	4,419	1.0	29	31	4,332	- 3.8	39
550	31	5,024	- 8.1		31	5,117	- 3.2	27	31	5,019	- 8.5	35
500	31	5,755	-13.1		31	5,860	- 7.5		31	5,745	-13.7	34
450	31	6,552	-18.9		31	6,675	-13.2		31	6,544	-19.6	31
400	31	7,415	-25.5		30	7,557	-20.0		31	7,402	-25.9	33
350	31	8,369	-32.9		30	8,532	-27.4		31	8,354	-33.0	
300	30	9,434	-40.9		30	9,622	-35.4		30	9,422	-40.9	
250	28	10,660	-49.9		29	10,866	-44.7		30	10,639	-49.0	
200	24	12,116	-56.0		27	12,326	-54.9		29	12,082	-55.4	
175	24	12,960	-58.7		26	13,171	-60.4		29	12,927	-58.2	
150	22	13,925	-61.6		25	14,115	-66.1		26	13,901	-61.2	
125	16	15,054	-64.5		23	15,209	-71.4		23	15,022	-63.9	
100	11	16,411	-65.2		17	16,503	-73.5		19	16,385	-63.5	
80					11	17,818	-71.2		13	17,748	-63.7	
60					7	19,554	-65.4		8	19,490	-59.5	
50					6	20,667	-61.8		5	20,595	-59.1	
40					5	22,044	-58.9					

Standard pressure surface (mb.)	LAS VEGAS, NEV. (935 MB.)				LITTLE ROCK, ARK. (1008 MB.)				MAZATLAN, MEXICO (1007 MB.)				MEDFORD, ORE (966 MB.)				MERIDA, MEXICO (1009 MB.)				MIAMI, FLA (1012 MB.)				NANTUCKET, MASS (1017 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	660	22.0	17	31	79	17.0	83	31	14	29.2	77	31	401	12.8	81	31	27	25.4	84	31	4	24.8	85	31	14	11.2	88
1,000	31	71			31	145	19.0	73	31	74	28.7	77	31	105			31	108	25.2	82	31	110	24.7	81	31	156	12.9	76
950	31	525			31	591	19.0	64	31	538	25.4	78	31	543	14.0	71	31	561	22.7	81	31	564	22.2	78	31	589	11.7	64
900	31	999	25.2	15	31	1,050	17.1	59	31	1,006	23.1	73	31	995	11.8	66	31	1,028	19.9	77	31	1,029	19.2	79	31	1,037	9.7	59
850	31	1,497	21.4	17	31	1,536	15.0	51	31	1,504	21.0	57	31	1,471	8.9	68	31	1,520	16.9	74	31	1,519	16.1	77	31	1,510	7.8	53
800	31	2,017	17.2	19	31	2,048	12.8	44	31	2,027	18.5	47	31	1,971	5.7	69	31	2,035	14.0	72	31	2,033	13.3	73	31	2,008	6.2	44
750	31	2,566	12.9	22	31	2,594	10.3	42	31	2,580	14.9	48	31	2,503	2.6	70	31	2,583	11.2	68	31	2,580	10.4	65	31	2,543	4.3	37
700	31	3,137	8.8	23	31	3,158	6.9	41	31	3,157	10.8	51	31	3,051	- 0.4	62	31	3,152	8.4	59	29	3,143	7.4	59	31	3,094	1.3	35
650	31	3,747	4.5	24	31	3,768	.0	39	30	3,774	6.3	54	31	3,647	- 3.6	55	31	3,767	5.4	49	29	3,756	4.6	49	31	3,693	- 1.8	32
600	31	4,392	0.1		31	4,407	- 0.6	32	30	4,421	1.6	49	31	4,269	- 7.3	52	29	4,414	2.4	38	28	4,411	0.8	45	31	4,320	- 5.4	34
550	31	5,083	- 4.5		31	5,099	- 4.4		29	5,122	- 2.5	37	30	4,952	-10.8	48	29	5,113	- 1.6	4	28	5,104	- 3.0	45	31	5,000	- 9.4	30
500	31	5,827	- 9.5		31	5,841	- 9.5		27	5,868	- 6.7		30	5,674	-15.6	43	29	5,864	- 6.2		28	5,854	- 7.7	43	31	5,728	-14.3	
450	30	6,635	-15.5		30	6,649	-15.1		27	6,691	-12.0	34	30	6,463	-21.2	43	29	6,687	-11.8		28	6,671	-13.1	42	31	6,522	-20.0	
400	30	7,511	-22.1		30	7,526	-21.5		27	7,573	-18.0	38	29	7,317	-27.6	41	29	7,573	-18.0		28	7,553	-19.1	38	31	7,381	-26.4	
350	30	8,478	-29.7		30	8,496	-28.8		25	8,555	-24.8		28	8,261	-34.6	39	29	8,558	-25.1		28	8,534	-26.0		30	8,327	-33.7	
300	30	9,558	-38.1		30	9,581	-36.7		24	9,654	-33.2		27	9,321	-42.1		29	9,657	-33.6		28	9,631	-34.0		30	9,390	-41.3	
250	30	10,790	-46.7		30	10,819	-45.4		24	10,908	-43.1		27	10,533	-50.3		29	10,909	-43.7		28	10,882	-43.7		29	10,611	-48.7	
200	29	12,235	-56.2		29	12,278	-55.1		22	12,368	-55.2		26	11,978	-55.7		27	12,367	-56.2		28	12,344	-55.6		28	12,046	-54.6	
175	29	13,076	-60.0		29	13,120	-59.9		22	13,206	-61.9		25	12,833	-57.6		27	13,201	-63.1		26	13,187	-62.0		28	12,895	-57.3	
150	27	14,033	-63.8		28	14,072	-64.9		22	14,143	-68.9		21	13,817	-59.5		26	14,129	-70.0		25	14,126	-68.5		28	13,863	-59.7	
125	26	15,137	-67.4		23	15,169	-69.4		17	15,213	-74.9		19	14,959	-62.1		24	15,192	-76.0		20	15,191	-73.4		28	14,995	-61.8	
100	22	16,472	-69.8		17	16,503	-70.7		12	16,473	-77.9		15	16,374	-64.5		16	15,192	-78.6		16	16,484	-74.4		28	16,368	-63.3	
80	20	17,812	-67.3		16	17,832	-68.9		7	17,759	-74.8		10	17,750	-61.5		7	16,460	-78.6		16	16,484	-74.4		22	17,734	-61.9	
60	15	19,551	-62.9		9	19,596	-63.0		7	19,463	-66.4										13	17,798	-70.5		13	19,529	-59.7	
50	11	20,660	-60.1						5	20,580	-63.5														8	20,623	-58.9	
40	6	22,062	-58.4																									

Standard pressure surface (mb.)	NASHVILLE, TENN (997 MB.)				NORTH PLATTE, NEBR. (917 MB.)				OAKLAND, CALIF. (1014 MB)				OKLAHOMA CITY, OKLA. (970 MB.)				OMAHA, NEBR. (979 MB.)				PHOENIX, ARIZ (971 MB.)				PITTSBURGH, PA (973 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	177	16.6	79	31	849	11.6	65	31	6	16.3	70	31	391	18.0	65	31	308	13.7	72	31	338	24.0	36	31	382	12.4	77
1,000	31	148			31	109			31	122	16.5	67	31	129			31	127			31	76			31	153		
950	31	538	18.0	60	31	551			31	568	16.5	58	31	576			31	569	16.3	55	31	533	30.3	20	31	593	13.6	65
900	31	1,050	15.5	60	31	1,006	15.2	51	31	1,018	14.6	52	31	1,040	19.6	45	31	1,021	14.5	51	31	1,012	27.2	19	31	1,042	12.0	63
850	31	1,533	12.8	59	31	1,490	14.4	46	31	1,500	12.7	44	31	1,530	17.6	39	31	1,503	13.2	48	31	1,513	23.2	22	31	1,518	9.8	57
800	31	2,040	10.4	46	31	2,001	13.5	37	31	2,006	10.0	44	31	2,046	15.3	33	31	2,011	11.2	41	31	2,037	18.9	25	31	2,020	7.4	47
750	31	2,582	8.1	41	31	2,546	10.7	34	31	2,544	7.0	45	31	2,593	12.3	31	31	2,558	8.9	35	31	2,592	14.3	29	31	2,555	5.3	40
700	31	3,142	5.1	38	31	3,114	6.9	36	31	3,105	3.9	43	31	3,164	8.7	25	31	3,116	5.9	32	31	3,164	9.8	30	31	3,110	2.5	37
650	31	3,745	1.5	38	31	3,721	2.6	36	31	3,707	0.8	41	31	3,776	4.9	25	31	3,729	2.0	33	31	3,782	5.2	31	31	3,708	- 0.8	36
600	31	4,383	- 2.3	34	31	4,360	- 2.2	38	31	4,343	- 2.8	38	31	4,420	0.6		30	4,361	- 2.3	34	31	4,423	0.8	24	31	4,341	- 4.3	33
550	31	5,070	- 6.5	28	31	5,048	- 7.3	38	31	5,028	- 7.0	36	31	5,113	- 3.6		30	5,051	- 6.7		31	5,121	- 3.8		31	5,024	- 8.5	32
500	30	5,807	-11.3		30	5,781	-12.4	33	31	5,764	-11.9	32	31	5,859	- 8.4		30	5,785	-11.7		31	5,861	- 8.8		31	5,752	-13.1	
450	30	6,613	-16.5		29	6,586	-18.0	30	31	6,565	-18.0	33	30	6,672	-14.3		30	6,590	-17.4	29	31	6,677	-14.5		31	6,551	-19.1	
400	30	7,482	-23.1		29	7,450	-24.3		31	7,432	-24.7		29	7,552	-21.2		30	7,455	-24.3		30	7,552	-20.9		31	7,411	-25.4	
350	30	8,446	-30.4		27	8,415	-31.4		29	8,392	-31.9		29	8,523	-28.5		30	8,414	-31.7		29	8,520	-28.3		30	8,367	-32.7	
300	30	9,524	-38.1		26	9,484	-39.6		29	9,463	-40.0		28	9,609	-36.4		30	9,487	-39.6		29	9,606	-36.4		30	9,435	-40.0	
250	30	10,757	-46.6		25	10,706	-48.6		29	10,684	-48.4		28	10,848	-45.8		30	10,710	-48.5		29	10,847	-45.2		29	10,666	-48.7	
200	30	12,209	-54.7		23	12,152	-56.3		28	12,127	-55.7		28	12,301	-55.5		29	12,153	-56.5		27	12,308	-54.8		29	12,108	-55.4	
175	30	13,054	-59.2		23	12,993	-59.3		28	12,971	-58.7		27	13,142	-60.4		29	12,994	-59.2		24	13,158	-59.7		28	12,946	-58.0	
150	30	14,009	-63.6		23	13,950	-62.4		25	13,945	-61.6		26	14,089	-65.1		29	13,951	-62.4		22	14,107	-64.5		27	13,915	-61.3	
125	26	15,120	-67.7		22	15,063	-65.2		21	15,062	-64.7		25	15,177	-69.2		27	15,068	-64.9		19	15,205	-69.0		25	15,036	-63.8	
100	23	16,453	-69.3		20	16,412	-68.0		18	16,425	-66.5		21	16,497	-71.7		23	16,414	-67.3		19	16,529	-67.5		19	16,399	-65.2	
80	16	17,787	-67.9		16	17,748	-64.9		14	17,795	-65.0		16	17,810	-70.3		20	17,757	-65.7		12	17,841	-71.1		13	17,748	-65.2	
60	5	19,569	-62.2		7	19,481	-60.4		8	19,567	-61.2		8	19,535	-63.6		13	19,515	-61.6		7	19,519	-67.2		6	19,474	-62.1	
50													7	20,669	-60.6		10	20,647	-60.3									
40																	6	22,038	-59.0									

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb)	PORTLAND, MAINE (1016 MB)				RAPID CITY, S. DAK. (903 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	20	7.7	89	30	966	9.9	60
1,000	31	150	10.7	70	30	105		
950	31	580	9.5	64	30	547		
900	31	1,025	7.4	64	30	999		
850	31	1,493	5.3	62	30	1,477	11.8	47
800	31	1,987	3.9	55	30	1,982	9.9	42
750	31	2,517	2.0	49	30	2,528	7.5	37
700	31	3,066	- 0.6	42	30	3,082	4.0	38
650	31	3,659	- 3.9	40	30	3,686	- 0.3	42
600	31	4,282	- 7.3	37	29	4,318	- 4.7	43
550	30	4,955	-10.9		29	5,001	- 9.4	44
500	30	5,679	-15.7		28	5,727	-14.3	42
450	30	6,468	-21.6		28	6,521	-19.8	39
400	30	7,322	-27.8		27	7,378	-26.3	
350	28	8,257	-35.2		27	8,329	-33.2	
300	28	9,315	-42.7		26	9,396	-41.0	
250	27	10,527	-49.9		25	10,616	-48.7	
200	21	11,985	-54.9		23	12,055	-55.8	
175	19	12,839	-56.1		21	12,892	-57.4	
150	18	13,831	-58.4		18	13,847	-59.2	
125	15	14,980	-61.9		12	14,991	-60.3	
100	12	16,371	-62.6		6	16,353	-60.2	
80	9	17,764	-63.2					
60								
50								

Standard pressure surface (mb)	ST. CLOUD, MINN. (977 MB)				SAN ANTONIO, TEX. (988 MB.)				SAN JUAN, P. R. (1012 MB.)				SANTA MARIA, CALIF. (1006 MB.)				S.STE. MARIE, MICH. (990 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	317	8.8	78	31	240	21.9	59	31	19	25.1	91	31	71	14.4	82	31	221	7.2	88
1,000	31	118			31	133			31	121	25.0	87	31	120	14.4	79	31	136		
950	31	551	10.9	66	31	588	23.8	53	31	581	22.6	83	31	568	17.8	55	31	562	8.5	74
900	31	986	9.6	62	31	1,054	20.6	55	31	1,041	19.8	81	31	1,019	17.8	39	31	1,006	6.5	67
850	31	1,469	8.5	54	31	1,545	16.9	59	31	1,533	16.9	79	31	1,505	15.6	35	31	1,474	4.9	60
800	31	1,969	6.9	47	31	2,059	13.8	52	31	2,048	14.3	75	31	2,017	13.0	33	31	1,967	3.1	56
750	31	2,503	4.6	44	31	2,607	11.5	40	31	2,602	11.6	71	31	2,567	10.2	34	31	2,495	0.6	58
700	31	3,057	1.9	41	31	3,174	8.9	31	31	3,167	8.6	65	31	3,126	7.0	36	31	3,039	- 1.8	54
650	31	3,657	- 1.5	42	31	3,790	5.6	28	31	3,787	5.4	58	31	3,737	3.3	33	31	3,634	- 5.1	52
600	31	4,285	- 5.1	40	31	4,434	2.2		30	4,427	2.0	49	31	4,376	- 0.6	31	31	4,250	- 8.8	49
550	31	4,966	- 9.1	40	31	5,135	- 1.9		30	5,126	- 1.8	49	31	5,068	- 5.2		31	4,923	-12.9	46
500	31	5,695	-13.9	41	31	5,882	- 6.9		29	5,878	- 6.1	45	31	5,808	-10.3		30	5,637	-17.3	40
450	31	6,490	-19.7	44	30	6,698	-12.8		29	6,699	-11.1	39	31	6,615	-16.4		30	6,422	-22.9	39
400	31	7,351	-25.9	41	30	7,582	-19.8		29	7,590	-17.4	40	31	7,485	-23.2		30	7,272	-28.9	38
350	30	8,298	-33.2	41	30	8,558	-26.9		29	8,575	-24.7	37	31	8,448	-30.4		29	8,212	-35.8	
300	30	9,363	-41.3		30	9,652	-34.6		28	9,678	-33.5		31	9,526	-38.4		28	9,269	-42.8	
250	30	10,577	-50.1		30	10,902	-43.4		28	10,931	-43.7		31	10,756	-47.2		28	10,478	-50.2	
200	27	12,021	-55.9		29	12,371	-54.0		27	12,392	-55.5		31	12,203	-55.5		27	11,915	-54.7	
175	27	12,868	-57.1		28	13,220	-60.2		26	13,232	-62.1		31	13,048	-59.0		25	12,759	-55.8	
150	22	13,838	-59.2		26	14,171	-66.5		26	14,170	-68.7		30	14,009	-62.7		24	13,734	-56.9	
125	20	14,976	-60.5		25	15,254	-72.4		25	15,247	-74.1		25	15,117	-66.0		21	14,862	-57.5	
100	19	16,364	-61.1		19	16,553	-74.2		20	16,540	-76.8		22	16,441	-67.6		18	16,264	-59.4	
80	13	17,732	-60.3		14	17,863	-71.9		12	17,834	-74.6		19	17,788	-65.2		10	17,662	-58.8	
60					5	19,626	-62.8		6	19,545	-67.7		14	19,547	-61.6					
50													8	20,682	-59.4					

Standard pressure surface (mb)	SPOKANE, WASH (929 MB.)				TACUBAYA, MEXICO (774 MB.)				TAMPA, FLA. (1014 MB.)				TATOOSH ISLAND, WASH. (1006 MB.)				TOLEDO, OHIO (995 MB.)				WASHINGTON, D.C. (1009 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	722	8.2	79	30	2,306	15.1	64	31	9	23.1	82	31	31	10.2	84	31	191	12.0	82	31	88	13.7	82
1,000	31	103			30	72			31	127	23.3	78	31	78			31	144			31	166	15.5	75
950	31	536			30	532			31	577	21.2	75	31	509	8.3	74	31	582	13.9	65	31	604	14.3	67
900	31	981	8.1	71	30	1,007			31	1,041	18.7	73	31	948	5.7	71	31	1,033	11.8	58	31	1,057	12.0	64
850	31	1,451	5.8	66	30	1,499			31	1,531	16.0	69	31	1,414	2.8	68	31	1,509	9.9	52	31	1,534	9.7	61
800	31	1,945	2.8	65	30	2,026			31	2,045	13.2	61	31	1,902	- 0.2	70	31	2,011	7.3	50	31	2,036	7.9	51
750	31	2,472	- 0.4	64	30	2,575	13.3	64	31	2,588	10.9	50	31	2,425	- 3.0	66	31	2,546	5.0	42	31	2,575	5.7	44
700	31	3,013	- 3.7	67	30	3,149	9.3	68	31	3,158	7.6	47	31	2,960	- 6.0	59	31	3,100	2.4	41	31	3,128	3.3	40
650	31	3,604	- 6.9	64	30	3,768	5.4	73	31	3,771	4.3	40	31	3,543	- 9.1	54	31	3,701	- 0.8	37	31	3,728	- 0.1	39
600	31	4,215	-10.5	63	30	4,411	1.3	74	31	4,413	0.9		31	4,152	-12.4	51	31	4,330	- 4.7	37	31	4,362	- 3.9	35
550	30	4,888	-14.6	64	30	5,113	- 2.5	61	30	5,110	- 2.6		31	4,815	-16.6	51	31	5,013	- 9.0	36	31	5,047	- 7.9	31
500	29	5,608	-18.9	58	29	5,860	- 6.0	44	30	5,857	- 7.4		31	5,521	-21.2	52	31	5,741	-13.9		31	5,778	-12.6	
450	29	6,390	-24.2	57	29	6,689	-11.0	38	30	6,672	-13.1		31	6,292	-26.3	49	31	6,537	-19.4		31	6,580	-18.3	
400	29	7,234	-29.7	56	29	7,573	-17.4	36	30	7,556	-19.4		31	7,133	-32.2	48	31	7,398	-25.8		31	7,442	-25.0	
350	29	8,172	-36.8	55	26	8,560	-24.5	38	30	8,534	-26.3	32	30	8,065	-38.4		31	8,350	-33.3		31	8,398	-32.4	
300	27	9,226	-44.2		26	9,664	-32.9		30	9,630	-34.3		29	9,126	-44.8		31	9,415	-41.6		31	9,467	-40.4	
250	24	10,423	-51.1		26	10,921	-42.9		30	10,882	-43.3		28	10,342	-50.9		28	10,629	-49.9		30	10,684	-48.8	
200	22	11,837	-55.5		25	12,387	-55.3		29	12,348	-53.9		23	11,753	-54.7		27	12,073	-55.8		30	12,126	-55.5	
175	21	12,698	-55.6		24	13,224	-62.1		28	13,191	-59.7		21	12,592	-54.0		26	12,919	-58.5		28	12,980	-58.7	
150	21	13,678	-56.7		20	14,165	-69.2		25	14,137	-66.1		18	13,590	-54.9		25	13,884	-61.4		27	13,943	-61.9	
125	15	14,857	-58.0		16	15,237	-75.9		24	15,232	-71.3		14	14,750	-55.2		21	15,000	-64.2		25	15,062	-65.0	
100	12	16,280	-59.3		10	16,531	-79.6		22	16,539	-73.7		9	16,201	-56.0		19	16,357	-64.9		19	16,427	-66.3	
80	7	17,677	-58.2		6	17,808	-74.0		17	17,844	-70.2						11	17,725	-64.1		15	17,771	-63.6	
60									8	19,574	-64.6										10	19,586	-60.6	
50																					4	20,723	-58.7	
40																					5	22,100	-58.3	

Note: All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

Table 21 OCTOBER 1950

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	197	2.4	31	231	2.1	27	12	1.7	30	270	1.7	31	268	2.3	30	147	0.6	30	65	4.1	28	237	2.1	30	212	2.2	30	40	0.6	30	259	1.1	31	195	0.6
500	--	---	----	--	---	----	27	16	2.0	--	---	----	--	---	----	--	---	----	30	62	4.0	28	245	3.9	30	221	4.7	28	35	1.4	30	263	1.1	--	---	----
1,000	31	184	3.4	--	---	----	27	17	1.7	--	---	----	31	267	3.7	30	162	.8	30	44	2.5	25	247	6.2	28	247	5.4	26	24	1.4	30	242	2.5	--	---	----
1,500	30	190	2.8	--	---	----	27	2	1.9	30	252	4.7	30	265	6.0	30	196	2.2	28	16	2.5	23	262	7.5	24	259	7.3	20	293	3.2	26	253	2.9	31	194	1.1
2,000	30	198	2.8	31	228	2.8	26	352	2.6	29	247	7.5	27	266	8.7	30	225	4.6	26	34	2.6	18	270	7.8	20	272	9.5	20	304	4.1	25	280	6.0	31	193	1.1
2,500	29	222	2.6	31	246	3.0	25	348	3.4	29	252	10.1	25	271	11.2	29	233	6.7	22	35	2.5	17	274	9.4	16	275	10.9	18	310	4.9	24	282	8.3	31	207	1.7
3,000	29	242	2.3	31	260	4.0	24	345	3.9	29	261	12.6	24	267	13.1	27	237	9.1	19	17	2.5	15	284	11.5	12	287	12.7	18	314	5.5	21	280	9.3	31	234	2.0
4,000	26	278	2.9	31	262	6.5	15	326	4.6	23	260	15.6	20	274	15.9	24	245	13.5	14	10	2.8	13	294	12.7				18	311	6.1	17	301	10.6	28	265	2.9
5,000	24	294	4.6	31	265	8.4	15	306	5.2	13	267	19.3	14	265	17.8	20	251	15.5	12	317	3.3	12	281	13.9				16	300	5.8	16	304	11.0	28	259	3.7
6,000	24	294	5.6	29	264	9.2	12	319	7.8	10	259	19.7				16	256	15.7	10	292	3.8							16	290	5.5	16	297	11.9	28	258	4.2
8,000	20	287	6.3	22	260	10.2										11	269	18.4										14	295	6.6	11	278	10.2	25	266	6.7
10,000	16	296	9.1	18	268	11.4																												21	268	14.6
12,000	10	300	16.2	11	267	19.8																												14	270	19.3

Altitude (meters) m.s.l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jackson-ville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	219	4.5	31	295	4.0	29	12	1.3	30	264	2.6	27	56	2.7	31	218	1.7	31	192	2.2	29	178	0.9	27	282	1.6	29	129	2.4	29	30	2.7	30	316	1.0
500	--	---	----	--	---	----	29	356	1.0	--	---	----	26	38	2.1	31	223	2.5	--	---	----	29	197	.8	27	275	1.6	29	108	3.2	29	9	2.3	30	259	1.4
1,000	--	---	----	--	---	----	27	311	.7	29	260	4.7	25	331	1.0	31	241	4.3	31	201	2.9	28	243	1.2	27	199	2.6	29	95	1.1	27	20	2.9	29	264	1.9
1,500	--	---	----	31	295	3.9	26	284	1.4	29	261	7.2	22	272	1.5	30	256	5.8	31	214	3.9	28	272	2.4	26	209	5.7	27	97	.6	27	34	3.6	28	265	1.7
2,000	31	216	4.5	31	275	3.9	23	297	3.4	27	264	11.0	21	290	2.3	26	275	6.9	31	223	4.9	27	278	3.8	23	214	8.3	23	249	.4	21	8	3.6	26	290	2.5
2,500	31	209	5.0	31	257	4.3	21	300	7.2	25	262	13.5	21	281	2.7	24	286	8.7	31	226	6.2	25	306	3.3	21	224	9.3	19	337	.7	14	330	4.2	26	299	4.1
3,000	31	210	5.4	30	238	5.4	21	301	8.1	22	267	13.9	18	291	4.8	22	287	9.8	30	235	7.4	24	302	5.0	15	232	8.4	19	291	.7	12	316	4.8	26	302	5.2
4,000	31	235	9.1	27	244	8.7	20	305	9.5	20	267	16.6	14	298	4.9	21	290	12.2	29	242	9.6	23	307	6.5	12	235	11.7	16	218	1.0				23	300	8.0
5,000	30	243	13.5	23	249	11.8	19	300	8.9	16	267	19.3	12	286	5.1	20	293	13.9	29	242	10.7	23	310	9.3	12	240	14.0							19	309	10.0
6,000	24	251	15.4	20	255	11.3	15	310	9.8	12	267	19.5	11	273	7.2	18	295	15.6	29	244	12.0	22	315	10.4	11	250	14.8							19	300	11.1
8,000	15	247	15.6				11	329	13.7										28	256	13.9	13	307	16.0										13	311	9.7
10,000																			20	250	16.8															
12,000																			12	242	20.9															

Altitude (meters) m.s.l.	New York, N.Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	177	0.6	31	241	2.3	30	185	4.0	30	219	1.5	31	213	1.0	28	262	1.7	29	238	1.3	30	211	0.9	31	90	0.9	30	285	4.0	28	268	1.3	29	185	1.7
500	30	236	2.0	31	231	2.4	30	186	3.8	30	226	2.1	31	215	.9	--	---	----	29	242	2.0	30	226	1.2	31	87	1.3	30	284	2.4	28	255	3.3	29	199	3 8
1,000	30	253	2.7	29	230	2.7	30	194	4.1	30	222	3.7	31	198	1.3	28	259	1.9	28	244	3.8	28	251	2.7	31	97	1.3	30	267	1.5	26	258	5.0	27	204	7.6
1,500	26	293	4.8	25	223	3.2	30	226	5.3	29	238	6.8	31	199	1.9	28	271	3.1	25	245	6.8	28	270	3.8	30	123	1.8	30	252	2.0	21	253	6.5	23	207	9.3
2,000	24	286	6.8	24	227	4.0	30	242	5.5	28	246	8.6	31	215	3.0	26	266	5.4	22	273	9.0	27	275	5.3	30	119	1.9	30	237	2.9	19	262	8.1	18	209	8.3
2,500	19	285	7.0	23	238	4.7	30	256	4.9	27	263	10.1	31	217	4.3	25	269	8.9	21	277	12.0	26	284	7.2	29	88	1.3	30	233	4.3	17	259	8.8	14	220	8.5
3,000	18	286	8.1	21	245	5.6	30	276	5.1	26	270	10.3	31	222	5.3	25	273	10.9	19	266	12.7	26	291	8.3	28	22	.4	30	228	4.6	14	264	9.6	11	232	11.3
4,000				21	239	8.5	28	271	6.9	24	282	11.0	31	222	6.4	23	269	13.7	17	265	15.1	25	299	9.5	25	341	1.7	28	231	5.6							
5,000				19	244	9.6	24	289	7.8	23	282	13.2	26	225	5.8	20	270	17.2	13	267	16.6	24	307	11.7	23	339	4.2	26	230	7.0							
6,000				18	240	10.3	22	301	9.8	23	285	14.9	23	233	9.1	13	275	18.8	12	270	19.0	22	310	14.0	23	335	3.5	26	237	8.8							
8,000				13	245	13.3	17	295	13.3	16	304	16.8	17	234	11.0							13	301	15.2	20	313	6.3	21	240	12.9							
10,000																									14	307	11.5	21	238	19.3							
12,000																												16	240	21.3							

Altitude (meters) m.s.l.	Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	25	200	3.1	28	90	0.9
500	--	---	----	28	289	1.1
1,000	25	203	4.4	26	275	2.9
1,500	22	210	6.7	25	277	4.5
2,000	19	223	8.4	22	287	5.9
2,500	14	235	10.4	18	288	5.8
3,000	10	239	11.1	17	292	6.1
4,000				14	293	6.1
5,000				14	306	6.6
6,000				14	301	7.4
8,000				10	310	9.7

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

Table 22 — OCTOBER 1950

Altitude (meters) msl	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrwood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			International Falls, Minn. (358 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	131	2.4	31	139	3.9	31	323	0.5	31	70	2.6	30	69	2.4	31	253	1.9	31	45	1.1	31	145	1.5	31	138	0.4	31	45	1.5	31	3	2.5	27	203	1.7
500	--	---	----	--	---	----	--	---	----	31	77	5.6	28	62	6.3	31	255	4.6	31	82	3.0	31	179	2.9	--	---	----	31	74	1.8	29	62	2.8	26	216	3.4
1,000	--	---	----	31	161	6.3	30	282	4.7	31	63	4.4	28	60	5.7	31	268	6.3	30	70	2.3	31	222	4.0	--	---	----	31	110	.9	27	83	2.0	26	235	6.9
1,500	--	---	----	31	181	5.4	30	286	6.8	31	52	3.4	28	54	4.5	31	272	8.1	30	63	1.9	31	237	5.2	31	124	.5	29	250	1.2	27	88	.9	24	265	7.2
2,000	31	213	4.4	31	195	3.4	31	284	8.7	31	48	3.0	29	50	3.8	30	277	8.7	29	67	.7	31	257	5.0	31	236	2.2	29	279	2.1	27	114	.6	22	278	6.9
2,500	31	234	4.7	31	225	2.1	31	282	12.1	31	48	3.4	29	48	3.2	30	273	10.5	29	318	.4	31	274	6.0	31	240	4.3	29	297	2.5	27	306	.6	22	272	8.4
3,000	31	254	4.9	31	260	2.3	31	280	14.0	31	39	3.5	29	41	3.3	30	272	12.2	29	298	1.3	31	287	6.6	31	238	6.5	29	296	2.6	29	284	2.5	22	273	10.0
4,000	31	280	6.0	31	301	2.8	30	269	17.0	31	33	4.2	30	13	3.1	29	272	14.4	28	280	2.3	30	288	8.0	31	243	9.2	30	286	4.1	29	277	4.6	22	269	13.3
5,000	31	279	7.1	31	287	3.2	27	274	17.1	30	32	4.1	30	353	4.6	28	271	15.7	28	292	2.6	29	291	9.2	30	257	12.1	29	279	6.5	29	275	6.6	22	270	16.1
6,000	31	269	7.7	31	301	4.1	22	263	19.7	28	45	3.5	30	329	5.9	27	274	17.1	27	276	4.7	29	286	10.7	28	261	13.7	29	273	7.7	30	274	6.8	21	269	17.8
8,000	29	266	11.7	30	308	7.6	18	267	23.0	27	4	3.1	27	320	9.4	23	271	20.7	26	270	9.9	28	287	14.4	23	269	15.7	29	282	11.6	29	281	10.2	15	277	19.6
10,000	26	267	16.1	29	294	10.9	12	269	24.7	27	334	6.8	27	318	11.8	17	272	20.2	24	269	12.3	25	285	19.0	19	271	16.7	28	276	12.6	26	269	17.3	12	268	16.9
12,000	21	274	16.8	27	288	15.6				24	332	8.3	25	297	13.6	14	267	20.5	25	271	15.8	23	284	23.1	13	280	22.1	23	281	15.5	25	271	19.8			
14,000	17	272	15.1	25	286	15.7				18	311	7.1	22	291	12.6	13	270	21.6	20	274	14.7	19	276	19.6				22	282	17.5	20	275	19.6			
16,000	14	292	7.7	20	291	8.5				16	3	2.4	14	274	6.5				17	286	9.2	14	285	14.2				20	277	10.4	16	274	15.5			
18,000										11	90	2.9							11	276	6.4							14	286	6.6						

Altitude (meters) msl	Little Rock, Ark. (80 m.)			Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	4	0.8	31	194	1.0	30	75	0.8	30	266	0.5	31	210	0.4	31	242	1.3	31	155	2.6	30	297	1.3	31	73	1.5	31	126	2.5	31	180	0.6	31	246	0.8
500	31	122	1.5	30	198	1.2	30	108	3.4	30	257	3.5	30	220	1.1	31	252	3.6	23	149	2.6	--	---	----	31	107	4.7	31	96	6.1	31	190	2.2	31	13	2.1
1,000	30	162	1.1	30	222	2.8	30	98	3.3	30	289	4.6	30	238	1.7	31	236	4.6	23	189	4.5	30	292	1.4	31	118	4.0	31	101	6.2	31	229	6.1	31	6	2.2
1,500	29	230	1.8	28	226	4.0	29	94	2.2	28	288	4.9	30	273	2.2	30	238	4.7	22	230	5.1	30	278	4.3	31	123	2.3	31	102	5.8	30	254	7.5	30	335	.9
2,000	29	250	2.5	29	219	7.1	29	102	1.8	28	282	6.1	31	312	2.8	30	235	5.6	24	245	4.3	29	269	7.2	31	105	1.3	31	94	5.0	29	259	9.0	30	252	1.9
2,500	29	289	2.7	28	224	8.7	29	113	1.7	28	273	7.9	31	315	3.6	30	239	6.0	27	274	4.2	28	269	9.0	31	66	.8	31	97	4.8	29	265	10.0	29	243	3.4
3,000	29	307	3.4	28	226	11.2	29	136	1.5	28	270	9.3	31	317	4.1	30	239	7.6	28	282	4.5	27	267	10.6	31	33	1.4	31	103	4.1	29	269	11.8	28	240	5.1
4,000	30	330	4.8	28	261	11.9	27	193	1.4	28	272	11.6	31	314	5.6	30	243	11.6	28	293	5.3	26	271	13.1	31	5	2.7	30	96	3.0	29	267	15.5	28	241	7.1
5,000	30	329	6.0	27	245	16.7	27	244	2.7	27	279	13.4	31	312	6.7	29	249	12.4	29	305	6.1	26	276	14.9	31	358	3.5	30	84	2.3	29	273	18.5	28	247	9.5
6,000	30	320	7.9	27	242	18.5	27	257	3.0	27	275	16.1	29	315	6.6	29	254	15.2	30	301	8.6	25	271	16.2	31	344	3.4	29	62	1.5	26	275	20.2	28	240	11.2
8,000	28	307	10.6	23	243	20.9	27	260	8.7	18	279	15.8	27	300	8.9	24	242	17.9	28	294	11.4	22	266	20.8	30	305	5.8	29	14	1.4	19	276	21.1	26	238	13.2
10,000	24	308	15.1	14	254	18.6	27	261	13.7	14	272	16.7	25	290	12.6	19	252	22.1	26	289	14.4	18	262	25.6	30	300	8.9	28	341	3.5	12	275	19.0	24	238	14.0
12,000	23	303	19.6				27	267	13.9				23	296	14.5	10	236	22.1	26	286	17.8	14	260	31.6	28	298	12.3	27	340	8.2				23	239	18.2
14,000	20	294	15.5				24	281	11.8				21	273	15.0				22	284	17.9				24	301	10.3	27	353	7.4				19	249	15.7
16,000	14	278	7.6				17	331	2.6				17	280	10.9				17	279	9.2				19	299	4.6	19	342	3.9				14	249	13.5
18,000	11	180	2.2										10	280	5.6				12	266	5.0							10	61	4.8						

Altitude (meters) msl	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	296	0.8	31	169	1.8	28	134	2.7
500	31	265	2.8	--	---	----	28	176	3.4
1,000	30	262	5.3	31	195	4.5	28	204	4.5
1,500	29	271	6.9	30	220	7.0	26	214	4.4
2,000	29	273	8.8	29	233	9.6	26	216	6.0
2,500	27	268	9.7	29	237	10.9	26	227	7.3
3,000	27	272	10.7	27	245	11.2	26	230	8.9
4,000	25	278	12.8	26	251	14.2	25	240	12.4
5,000	23	277	13.5	24	252	17.1	23	246	14.2
6,000	19	282	14.3	23	256	19.2	22	248	16.5
8,000	14	279	17.1	12	260	22.6	19	246	22.0
10,000	11	293	20.0				12	240	23.6
12,000							10	248	19.8

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.

SOLAR RADIATION DATA

Table 30.-Solar radiation intensities, tabulated in langleys per minute.

TABLE MOUNTAIN, CALIFORNIA

Date	Sun's zenith distance: A M. 78.7°	75.7°	70.7°	60.0°	0.0°	P M 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E S T 7:30 a.m.	1:30 p.m.
	Air mass: 3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
										Mb.	*Mb.*
October											
1	----	----	----	1.50	----	----	----	----	----		
2	1.21	1.30	1.39	1.51	----	----	----	----	----		
3	----	----	----	1.50	----	----	----	----	----		
4	----	----	----	1.45	----	----	----	----	----		
5	1.13	1.22	1.32	1.44	----	----	----	----	----		
18	----	----	----	1.42	----	----	----	----	----		
19	----	----	----	1.44	----	----	----	----	----		
20	----	----	----	1.47	----	----	----	----	----		
21	1.18	1.26	1.37	1.50	----	----	----	----	----		
26	----	----	----	1.44	----	----	----	----	----		
28	1.10	1.19	1.30	1.43	----	----	----	----	----		
29	----	----	----	1.47	----	----	----	----	----		
Averages	1.16	1.24	1.35	1.46	----	----	----	----	----		
Departures	+.01	00	+.01	00	----	----	----	----	----		

LINCOLN, NEBRASKA

	Air mass: 4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
										Mb	*Mb*
October											
4	0.75	0.86	1.01	1.18	1.42	1.20	1.01	0.86	0.75	5.6	6.4
9	.79	.92	1.07	1.22	1.47	1.23	----	----	----	6.9	11.0
10	.42	.56	.77	1.01	1.32	1.17	.99	.84	.73	11.0	9.4
11	.77	.86	1.03	1.16	1.34	1.14	.98	.83	.72	9.8	7.2
12	.72	.83	.99	1.12	1.33	1.10	.92	.77	.62	7.8	9.1
13	.62	.73	.86	1.03	1.30	1.08	.84	.64	.50	10.6	13.7
14	.66	.73	.88	1.07	1.31	1.03	----	----	----	12.7	10.6
17	.49	.66	.75	.96	1.25	1.03	.86	.71	.62	11.8	15.9
18	.64	.73	.88	1.08	1.36	.99	.75	.62	.50	13.7	12.7
19	.70	.83	.99	1.16	1.38	1.21	1.01	.86	.73	11.8	11.4
20	.77	.88	1.01	1.20	1.46	1.23	1.03	.88	.77	6.9	8.4
24	----	----	----	----	1.45	1.22	1.03	.90	.79	6.4	5.8
28	.90	1.01	1.12	1.28	1.44	----	----	----	----	5.6	6.1
30	.92	1.01	1.14	1.29	1.51	1.28	1.08	.92	.82	8.7	12.7
31	.69	.86	1.01	1.14	1.35	1.12	.90	.73	.60	13.2	12.7
Averages	.70	.82	.97	1.14	1.38	1.15	.95	.80	.68		
Departures	-.09	-.08	-.09	-.11	-.05	-.08	-.10	-.11	-.12		

MADISON, WISCONSIN

	Air mass: 4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	1.81		
										Mb	*Mb*
October											
3	0.80	0.90	1.04	1.19	----	1.11	----	----	--	5.8	6.1
4	.71	.83	.99	1.16	----	----	----	----	----	6.9	5.8
9	----	----	----	1.04	----	----	----	----	----	10.2	10.2
10	----	.75	.84	----	----	----	----	----	----	7.5	11.0
12	.60	.71	.84	1.02	----	----	----	----	----	7.2	6.4
17	.33	.41	.55	.66	----	----	----	----	----	12.7	17.7
18	.64	.74	.88	1.07	----	----	----	----	----	12.3	15.3
19	.61	.75	.90	1.11	----	----	----	----	----	13.7	11.8
20	----	----	.92	1.21	----	----	----	----	----	7.2	9.1
21	(smoke)	.64	.84	1.06	----	----	----	----	----	7.8	10.6
25	.84	.95	1.06	1.22	----	----	----	----	----	5.1	6.1
30	.47	.60	.79	.98	----	.99	----	----	----	8.1	13.2
31	.64	.83	.98	----	----	----	----	----	----	12.3	15.3
Averages	.63	.74	.89	1.07	----	1.07	----	----	----		
Departures	-.10	-.12	-.11	-.10	----	-.13	----	----	----		

BOSTON, MASSACHUSETTS

	Air mass: 4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
										Mb	*Mb*

No record

TACUBAYA, D.F., MEXICO

Date	Sun's zenith distance: A M. 78.7°	75.7°	70.7°	60.0°	0.0°	P M 60.0°	70.7°	75.7°	78.7°	E S T 7:30 a.m.	1:30 p.m.
	Air mass: 3.83	3.07	2.21	1.53	*0.77	1.53	2.21	3.07	3.83		
										Mb.	*Mb.*
October											
2	----	----	----	1.55	----	----	----	----	----	10.9	12.4
3	----	----	----	----	----	1.53	1.28	1.03	0.80	9.8	10.3
4	0.43	0.61	----	----	----	----	----	----	----	9.1	10.8
6	.88	.96	1.03	----	----	----	----	----	----	11.3	11.9
7	----	.57	.70	.59	----	----	----	----	----	10.0	12.4
14	.89	.99	1.08	1.36	----	1.19	.99	.73	.48	8.1	8.8
16	----	----	----	----	----	1.26	1.05	1.00	.68	9.4	7.9
17	----	----	----	1.10	----	1.05	----	----	----	10.7	9.7
18	----	----	----	----	----	1.20	----	----	----	9.4	10.4
19	.88	.90	.93	1.16	----	----	1.09	.80	.57	7.6	6.4
20	.52	.53	.65	.79	----	----	----	----	----	8.1	9.3
21	----	----	.53	.95	----	----	----	----	----	10.3	11.2
23	.68	.70	.95	1.23	----	1.20	.91	.88	.68	9.2	7.4
24	----	----	----	1.32	----	1.06	----	----	----	9.1	9.4
25	.69	.85	1.08	1.29	----	1.13	1.00	.76	.58	8.1	8.4
26	.46	.65	.59	.62	----	1.08	1.04	1.05	.81	5.7	6.1
27	.53	.75	.86	.95	----	1.05	1.02	.57	.47	6.0	8.0
28	.54	.61	.70	.87	----	1.24	1.08	.85	.52	7.3	10.7
29	----	----	----	----	----	1.05	.91	.56	.50	10.3	11.6
30	.76	.89	1.05	----	----	1.49	1.11	.92	.84	11.2	8.3
31	----	----	----	1.22	----	1.12	1.06	.90	.82	9.6	8.9
Averages	.66	.73	.85	1.06	----	1.17	1.03	.83	.67		
Departures	----	----	----	----	----	----	----	----	----		

BLUE HILL, MASSACHUSETTS

	Air mass: 4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
										Mb.	*Mb*
October											
1	0.53	0.64	0.79	0.97	----	0.87	0.64	0.44	0.40	14.0	15.1
2	.27	.37	.51	.76	----	.66	.63	.49	.43	15.0	16.9
3	.51	.58	.68	.88	----	----	----	----	----	8.8	16.5
4	----	----	----	----	----	1.16	1.05	.91	.79	8.5	10.2
5	.90	1.00	1.14	1.30	----	1.25	1.08	.96	.85	6.8	5.6
6	.83	.95	1.07	1.18	----	----	.97	.79	.67	9.1	9.1
8	----	----	----	----	----	1.03	.84	.70	----	13.4	14.2
13	.63	.72	.87	1.07	----	----	----	----	----	9.3	7.8
14	----	----	----	----	----	----	----	.79	.64	5.7	6.0
15	.78	.91	1.04	1.17	----	1.19	1.02	.92	.74	6.8	5.3
16	.82	.93	1.05	1.23	----	----	----	----	----	4.2	4.9
17	.78	.88	.99	1.14	----	----	.87	.69	.53	9.7	11.9
18	----	----	----	----	----	----	.54	.42	.33	13.6	12.3
19	----	----	----	----	----	1.06	.74	.58	.44	10.8	14.8
20	----	----	----	----	----	1.21	1.17	1.05	.93	16.0	7.8
21	.94	1.04	1.16	1.30	----	1.30	1.05	.95	.85	4.9	4.4
26	.78	.89	1.06	1.24	----	1.25	1.15	1.01	.87	4.7	3.6
27	.98	1.09	1.20	1.33	----	1.34	1.07	.86	.73	4.4	4.0
30	----	----	----	----	----	----	.93	.74	.61	12.9	10.1
31	.74	.80	1.05	1.28	----	1.31	1.14	1.02	.84	8.7	3.4
Averages	.72	.84	.97	1.14	----	1.15	.93	.79	.68		
Departures	-.12	-.10	-.10	-.08	----	-.07	-.08	-.10	-.09		

ALBUQUERQUE, NEW MEXICO

	Air mass: 4.08	3.20	2.44	1.63	*0.815	1.63	2.44	3.20	4.08		
										Mb	*Mb*

No record

* Extrapolated

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.

An explanation of Tables 30 and 33 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

SOLAR RADIATION DATA

Table 31.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during October 1950

Date	1	2	3	4	5	6	7	Average	8	9	10	11	12	13	14	Average	15	16	17	18	19	20	21	Average
Langleys	432	415	432	353	499	489	181	400	384	341	19	351	22	194	414	246	492	476	486	369	384	486	517	459
Date	22	23	24	25	26	27	28	Average																
Langleys	334	25	21	81	529	520	300	258																

Table 32.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during October 1950

Date	1	2	3	4	5	6	7	Average	8	9	10	11	12	13	14	Average	15	16	17	18	19	20	21	Average
Langleys	72	70	71	72	70	70	89	73	71	71	20	76	28	65	75	58	63	61	62	57	59	61	56	60
Date	22	23	24	25	26	27	28	Average																
Langleys	68	23	19	40	60	51	56	45																

Note.—Langley is the unit used to denote one gram calorie per square centimeter

SOLAR RADIATION DATA

Table 33.-Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. OCTOBER 1950

	Honolulu, T.H.	Pearl Harbor, T.H.	Brownsville, Tex.	Gainesville, Fla.	Apalachicola, Fla.	Lake Charles, La.	El Paso, Tex.	Ft. Worth, Tex.	Charleston, S.C.	Griffin, Ga.	Phoenix, Ariz.	Riverside, Calif.	Santa Maria, Calif.	Albuquerque, N.M.	Hatteras, N.C.	Oklahoma City, Okla.	Raleigh, N.C.	Oak Ridge, Tenn.	Las Vegas, Nev.	Nashville, Tenn.	Stillwater, Okla.	Fresno, Calif.	Davis, Calif.	Washington, D.C.	Ely, Nev.	Seabrook, N.J.	Indianapolis, Ind.	Grand Lake, Colo.	Salt Lake City, Utah	New York, N.Y.	Sayville, N.Y.	State College, Pa.	Lincoln, Nebr.
1950																																	
October 1----	473	423	557	306	298	466	472	406	(359)	137	575	450	581	478	439	415	432	299	529	370	256	521	466	368	476	393	327	257	292	416	450	354	58
October 2----	614	621	629	272	471	498	(436)	348	(475)	429	566	457	570	566	346	176	348	356	511	386	112	514	456	411	529	422	358	513	451	369	438	313	410
October 3----	580	550	149	340	446	478	380	197	(436)	485	425	449	567	463	483	354	469	361	526	295	370	504	429	396	525	411	---	505	455	332	451	279	467
October 4----	633	620	387	315	501	447	490	340	454	454	502	430	539	372	485	513	435	143	515	431	492	477	430	149	511	168	369	496	344	306	294	360	482
October 5----	604	557	289	366	519	529	549	497	165	316	537	422	471	505	338	444	136	466	507	452	334	467	325	456	483	400	450	489	431	445	445	462	292
October 6----	582	573	392	168	391	531	562	474	473	265	532	395	557	529	222	417	441	427	481	427	404	460	464	403	(501)	420	407	214	363	340	234	419	360
October 7----	522	585	575	326	497	486	567	267	143	527	533	404	542	535	407	343	182	426	490	405	339	468	426	113	482	93	409	480	442	218	231	360	408
Averages------	572	561	425	299	446	491	(494)	361	(358)	373	524	430	547	493	388	380	349	354	508	395	330	487	428	328	(501)	330	387	422	397	346	363	364	354
Departures----	+14	+5	---	+1	---	+28	-21	-42	---	---	-9	+41	+24	-1	---	-31	---	00	+8	+49	---	+55	+21	+3	---	+47	---	+8	+5	+44	+53	+75	+26
October 8----	483	568	523	233	124	450	553	536	(347)	227	525	398	(497)	524	457	516	150	183	480	92	416	457	398	49	478	152	237	479	398	181	205	45	446
October 9----	597	539	564	49	456	549	535	504	335	542	517	387	455	498	108	502	381	248	463	138	474	456	410	55	452	83	119	317	373	137	224	44	434
October 10----	506	392	374	422	560	537	529	505	511	514	519	393	490	503	482	452	467	438	463	440	335	442	411	233	467	361	453	457	394	291	226	145	417
October 11----	569	511	498	404	510	486	545	483	468	517	509	395	499	504	376	473	431	423	451	438	453	436	397	349	458	348	310	450	384	230	331	183	418
October 12----	465	543	557	384	509	488	535	486	478	520	506	349	489	498	441	483	449	454	457	454	427	431	407	331	459	265	449	445	374	159	113	156	411
October 13----	564	550	536	395	540	520	536	478	503	526	498	378	416	496	485	467	469	436	451	384	427	342	411	162	396	340	324	446	393	189	241	273	392
October 14----	576	556	535	378	518	494	492	469	484	477	467	362	439	464	475	442	438	371	404	404	399	393	281	97	385	196	388	424	283	290	255	74	399
Averages------	537	523	513	324	460	503	532	494	(446)	475	506	380	(469)	498	403	476	398	365	453	336	418	422	388	182	442	249	326	431	371	211	228	131	417
Departures----	-6	-13	---	-26	---	+33	+17	+70	---	---	+1	+4	-11	+15	----	+57	---	+20	+1	+41	---	+24	+16	-117	---	-34	---	+9	+1	-70	-49	-113	+105
October 15----	445	526	478	357	519	488	503	481	(399)	465	483	376	413	360	385	448	387	397	422	382	394	421	359	305	381	240	388	377	220	43	43	335	(306)
October 16----	525	530	495	143	220	470	517	462	301	386	492	384	443	470	400	448	293	395	441	386	377	363	123	375	370	403	389	372	342	382	442	396	250
October 17----	457	514	548	63	149	483	525	448	75	276	480	384	470	455	309	442	306	389	456	386	402	408	364	184	378	256	383	414	361	277	334	375	367
October 18----	581	565	520	9	197	45	505	172	(151)	95	500	377	465	446	393	352	354	401	---	370	321	405	395	347	432	251	384	416	373	225	286	314	373
October 19----	593	578	448	277	386	336	498	155	183	33	485	364	464	465	260	159	131	131	325	261	212	392	365	257	431	332	355	425	362	292	152	353	386
October 20----	571	529	363	192	127	478	481	327	254	201	467	350	387	455	107	171	126	110	---	231	205	392	371	219	404	283	388	418	376	362	368	395	395
October 21----	503	501	511	110	196	375	478	384	102	147	472	270	393	457	396	391	427	249	332	144	324	387	380	354	423	399	292	410	350	342	403	390	365
Averages------	525	535	481	164	256	382	501	347	(209)	229	483	358	433	444	321	344	289	296	395	309	328	306	337	292	403	302	369	405	341	275	290	365	349
Departures----	+2	+24	---	-152	---	-34	-2	-61	---	---	+2	+10	+11	-10	---	-51	---	-9	-8	+5	---	-59	-18	+9	---	+31	---	+5	+12	+11	+27	+111	+52
October 22----	537	516	504	237	448	(388)	476	430	183	98	498	316	316	449	332	440	96	197	355	57	420	334	343	206	423	263	117	417	343	317	373	286	102
October 23----	467	349	491	297	406	427	490	442	319	268	381	215	374	445	264	435	124	175	231	239	400	229	60	28	274	84	72	392	269	31	56	55	217
October 24----	485	390	509	295	489	449	486	455	342	332	454	341	397	420	165	418	67	275	423	214	388	275	219	69	258	69	207	371	292	66	85	31	357
October 25----	379	411	500	315	469	390	479	439	80	318	465	293	(260)	434	102	371	239	279	317	335	335	257	121	219	408	258	385	336	346	219	258	295	304
October 26----	565	517	388	313	450	397	483	460	360	226	461	287	273	444	(361)	414	352	371	423	358	410	269	86	310	401	368	113	276	312	379	385	374	267
October 27----	549	502	514	293	440	374	450	436	356	407	426	259	434	379	415	412	350	280	411	319	385	331	213	250	292	347	205	361	214	269	405	241	351
October 28----	563	476	453	302	436	351	486	433	362	302	468	342	425	446	308	412	360	250	414	294	373	381	132	214	178	230	254	---	60	118	146	126	327
Averages------	506	451	480	293	448	(396)	479	442	286	279	450	293	(354)	431	(278)	415	227	261	368	260	387	297	168	185	319	231	193	359	262	200	244	201	275
Departures----	+7	-7	---	-21	---	+8	-4	+32	---	---	-3	-33	-34	-2	---	+36	---	+11	-12	+10	---	-49	-144	-68	---	-6	---	-5	-27	-24	+10	-14	+4

Accumulated Departures January 1 to October 28, 1950

	-105	+518	---	+3269	---	---	---	---	---	---	---	-3787	---	---	---	---	---	---	---	-1036	---	+2194	-5292	-6853	---	---	---	---	---	-5999	---	-4256	+2604

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Table VII.--Daily, total- and departures, during [illegible] weeks of solar radiation, direct and diffuse, received on a horizontal [illegible] for the period September [illegible] 1950

	Upton, N.Y.	Cleveland, Ohio	Newport, R.I.	Put-in-Bay, Ohio	East Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Medford, Oreg.	Amherst, Mass.	Lynn, Mass.	Ithaca, N.Y.	Albany, N.Y.	Lander, Wyo.	East Lansing, Mich.	Madison, Wis.	Boise, Idaho	Portland, Me.	Toronto, Ont.	Rapid City, S.D.	Ottawa, Ont.	St. Cloud, Minn.	North Head, Wash.	Sault Ste. Marie, Mich.	Bismarck, N.D.	Caribou, Me.	Great Falls, Mont.	Spokane, Wash.	Seattle (Univ. of Wash.), Wash.	Glasgow, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska	Aklavik, MacKenzie
1950																																
October 1----	452	292	409	371	392	426	369	476	326	390	420	396	106	265	262	435	431	264	873	331	31	429		140	403	420	365	302	242	159	162	126
October 2----	428	368	403	351	389	402	346	298	330	348	430	374	388	302	267	360	403	307	---	307	139	121		302	342	184	297	365	268	101	375	179
October 3----	452	76	422	229	387	115	356	79	237	361	241	256	343	340	428	391	382	151	164	136	266	94		480	259	455	167	82	421	250	338	191
October 4-----	(316)	241	304	373	296	359	270	155	339	383	284	400	441	255	428	217	456	189	---	207	419	104		436	433	270	66	122	238	371	119	194
October 5-----	(444)	395	447	453	417	468	358	287	379	376	317	270	449	342	272	94	443	338	---	296	170	191		402	357	196	103	174	332	182	103	131
October 6-----	276	319	392	407	407	447	371	269	345	410	408	372	473	165	264	213	403	311	---	277	295	104		133	260	338	331	188	211	161	46	155
October 7-----	247	345	259	364	204	252	205	433	260	330	359	376	467	235	133	351	338	304	---	358	278	124		62	325	418	172	201	332	322	179	162
Averages------	(374)	295	377	364	355	396	321	285	330	371	351	349	381	272	285	294	408	266	---	273	233	167		280	340	326	215	205	292	221	189	162
Departures----	+55	---	+60	+30	+38	+77	+27	-26	---	+47	+60	+72	-11	+15	00	-34	+42	00	---	+29	-36	---		---	+64	+2	-41	---	---	-16	-11	+47
October 8-----	267	176	397	76	369	366	181	122	292	308	---	358	463	146	257	367	433	273	---	300	86	205		332	218	397	203	58	389	180	210	54
October 9-----	(219)	28	322	52	325	343	239	332	268	290	---	233	336	34	392	396	352	78	---	257	396	78		351	354	376	316	93	337	260	271	49
October 10----	(221)	349	54	300	54	33	4	407	25	32	67	33	448	55	335	383	146	29	---	79	372	298		316	355	309	282	294	216	219	242	84
October 11----	315	128	355	134	364	346	272	391	287	328	95	166	431	99	255	---	278	211	---	42	389	335		392	27	315	238	236	352	327	265	(76)
October 12----	127	132	67	250	80	52	54	358	---	59	84	57	400	153	389	352	79	82	---	71	380	188		382	44	272	295	91	308	316	125	62
October 13----	244	193	260	372	259	222	195	321	167	186	138	160	406	319	157	360	215	313	---	127	283	158		307	90	296	184	56	323	93	265	100
October 14----	319	215	340	260	326	376	350	245	238	352	154	204	418	200	338	270	401	204	---	255	325	145		118	147	304	144	132	300	146	41	55
Averages------	(245)	175	257	206	254	248	185	311	220	222	107	171	415	144	303	355	272	174	---	162	319	201		314	176	324	237	137	318	220	203	(69)
Departures----	-48	---	-47	-62	-22	-57	-39	+26	---	-64	-158	-82	+25	-65	+42	+10	-47	-36	---	-47	+33	---		---	-44	+29	+26	---	---	+19	+18	-18
October 15----	50	367	118	430	264	408	361	238	339	379	371	359	290	296	206	337	409	343	---	374	246	214		316	214	354	282	305	179	88	186	147
October 16----	430	359	389	372	353	397	317	122	340	365	398	374	332	285	301	93	399	314	---	214	269	70		317	334	126	213	108	119	292	189	52
October 17----	350	342	372	376	350	380	305	140	---	325	357	336	414	282	303	100	252	249	---	90	313	84		325	30	211	88	114	174	113	46	60
October 18----	282	351	274	364	276	314	249	312	---	308	287	234	302	(299)	347	328	334	119	---	292	278	107		324	279	246	127	105	179	225	73	87
October 19----	281	375	165	390	171	306	241	330	---	260	365	289	414	288	347	323	198	287	339	267	302	138		350	28	273	64	93	260	105	99	76
October 20----	377	340	339	310	323	367	281	182	---	330	356	306	296	322	349	331	339	327	---	327	326	221		329	104	67	82	161	185	48	244	45
October 21----	391	296	370	382	350	375	271	312	---	323	372	354	383	307	315	273	322	263	53	115	184	298		83	334	163	226	213	125	131	173	43
Averages------	309	347	290	375	298	364	289	234	---	327	358	322	347	(297)	310	255	322	272	---	240	274	162		292	189	206	154	157	174	143	144	73
Departures----	+39	---	+6	+108	+34	+77	+36	+6	---	+62	+102	+72	-9	+75	+74	-3	+44	+48	---	+42	-7	---		---	+9	-44	-24	---	---	-32	-14	00
October 22----	369	182	317	239	263	287	218	218	---	236	282	268	383	62	71	(316)	161	99	---	89	69	204		151	210	345	137	77	217	218	206	(89)
October 23----	(61)	33	62	56	71	42	2	160	---	38	38	32	398	45	145	---	85	220	327	37	298	272		313	78	318	287	144	216	121	138	52
October 24----	88	43	105	96	96	40	25	178	---	77	81	51	358	74	249	---	130	51	353	69	301	40		336	251	265	140	36	313	70	144	68
October 25----	(214)	332	164	374	108	109	52	85	162	101	242	320	287	240	335	183	144	122	304	150	322	151		279	44	265	83	90	264	263	69	(77)
October 26----	(338)	290	356	341	353	373	256	111	373	303	205	225	276	287	136	---	271	258	---	223	219	51		261	116	316	248	107	173	208	189	66
October 27----	(312)	92	336	99	329	352	214	108	340	295	329	321	225	60	253	118	372	242	327	319	285	66		256	177	105	197	128	134	240	87	37
October 28----	147	249	243	298	249	188	169	64	111	234	71	75	278	155	203	46	203	105	217	---	295	68		302	286	243	81	51	241	236	147	48
Averages------	(218)	174	226	215	210	199	134	132	323	183	178	185	315	132	199	---	195	157	306	148	256	122		271	166	265	167	90	223	194	140	62
Departures----	-2	---	00	-24	+3	-16	-44	-63	---	-30	+4	-46	-11	-50	-15	-52	-25	-21	+13	-26	+10	---		---	-1	+18	-18	---	---	+29	-4	+4

Accumulated Departures January 1 to October 28, 1950

	---	---	-3311	+5432	-5740	+2989	+1974	---	---	---	---	---	---	+609	+4767	---	---	-1463	---	---	---	---		---	---	---	---	---	---	---	---	+10731

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

W.B.O., Washington, D.C.---1/23/51---2400

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, October 1950

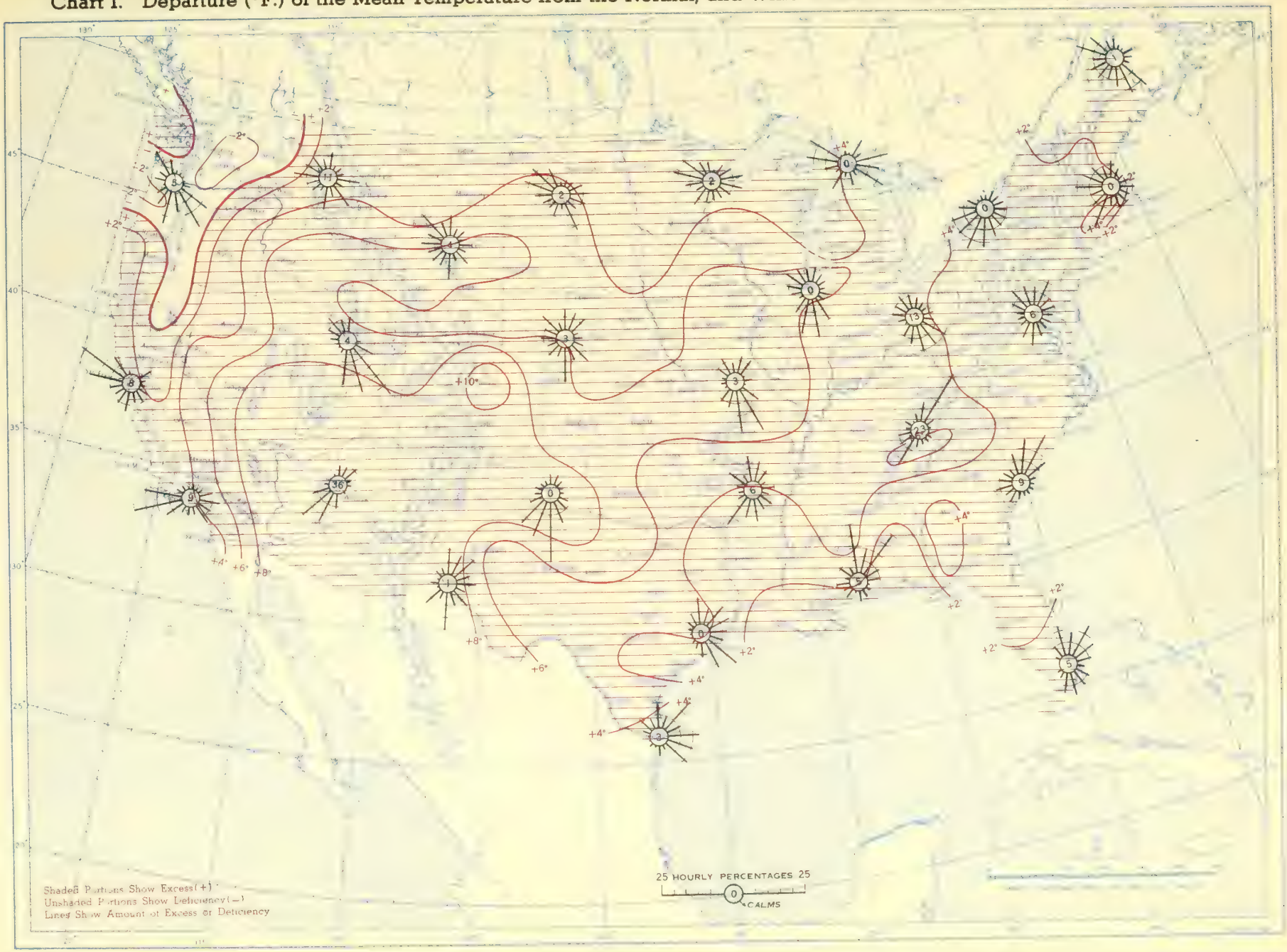
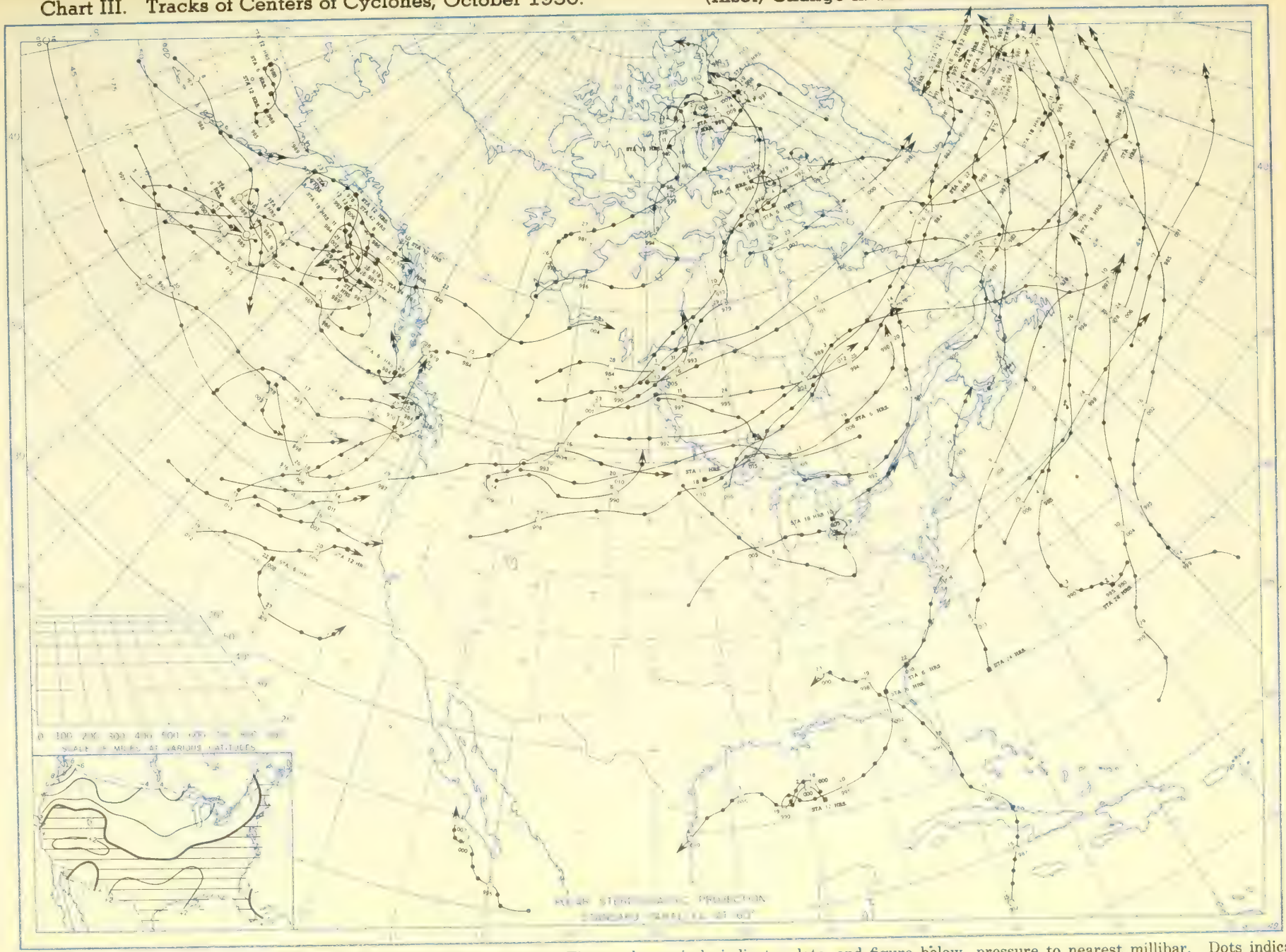


Chart II. Tracks of Centers of Anticyclones, October 1950. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Figure above circle indicates date, and figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Square indicates position of stationary center for period shown. Only those centers which could be identified for 24 hours or more are included.

Chart III. Tracks of Centers of Cyclones, October 1950. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time). Figure above circle indicates date, and figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Square indicates position of stationary center for period shown. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, October 1950



Chart V. Total Precipitation, Inches, October 1950. (Inset) Departure of Precipitation from Normal

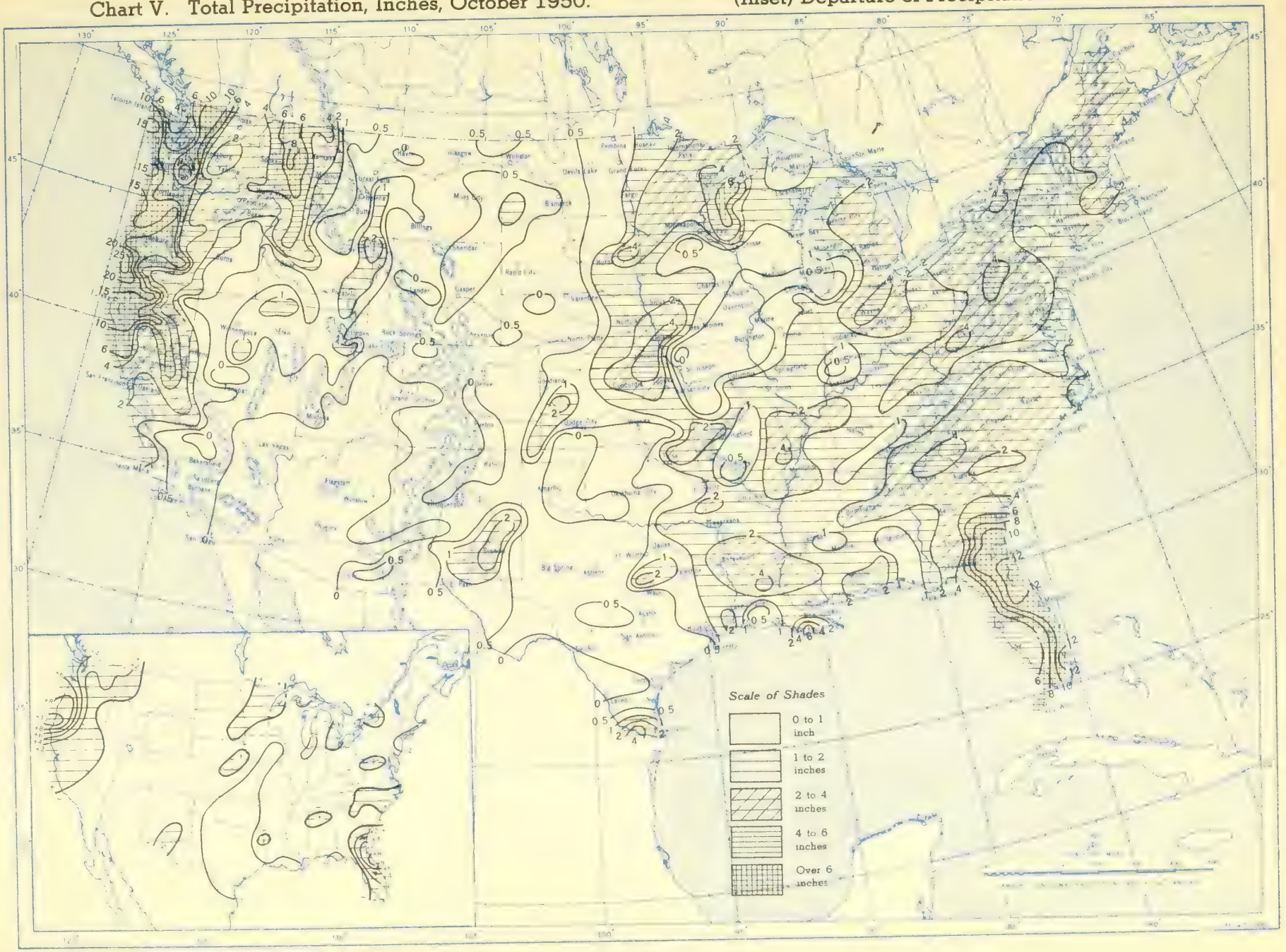


Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., October 1950

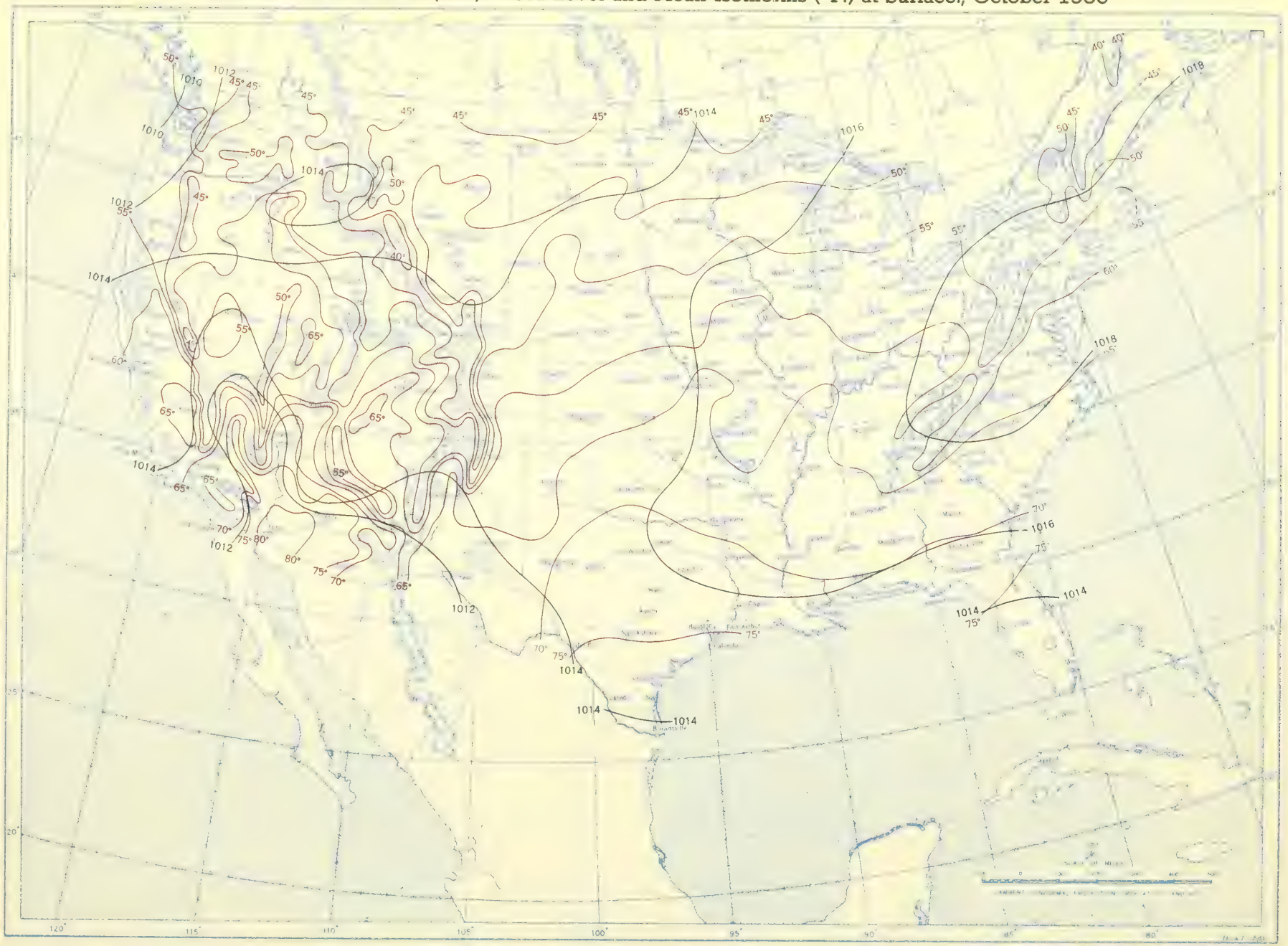
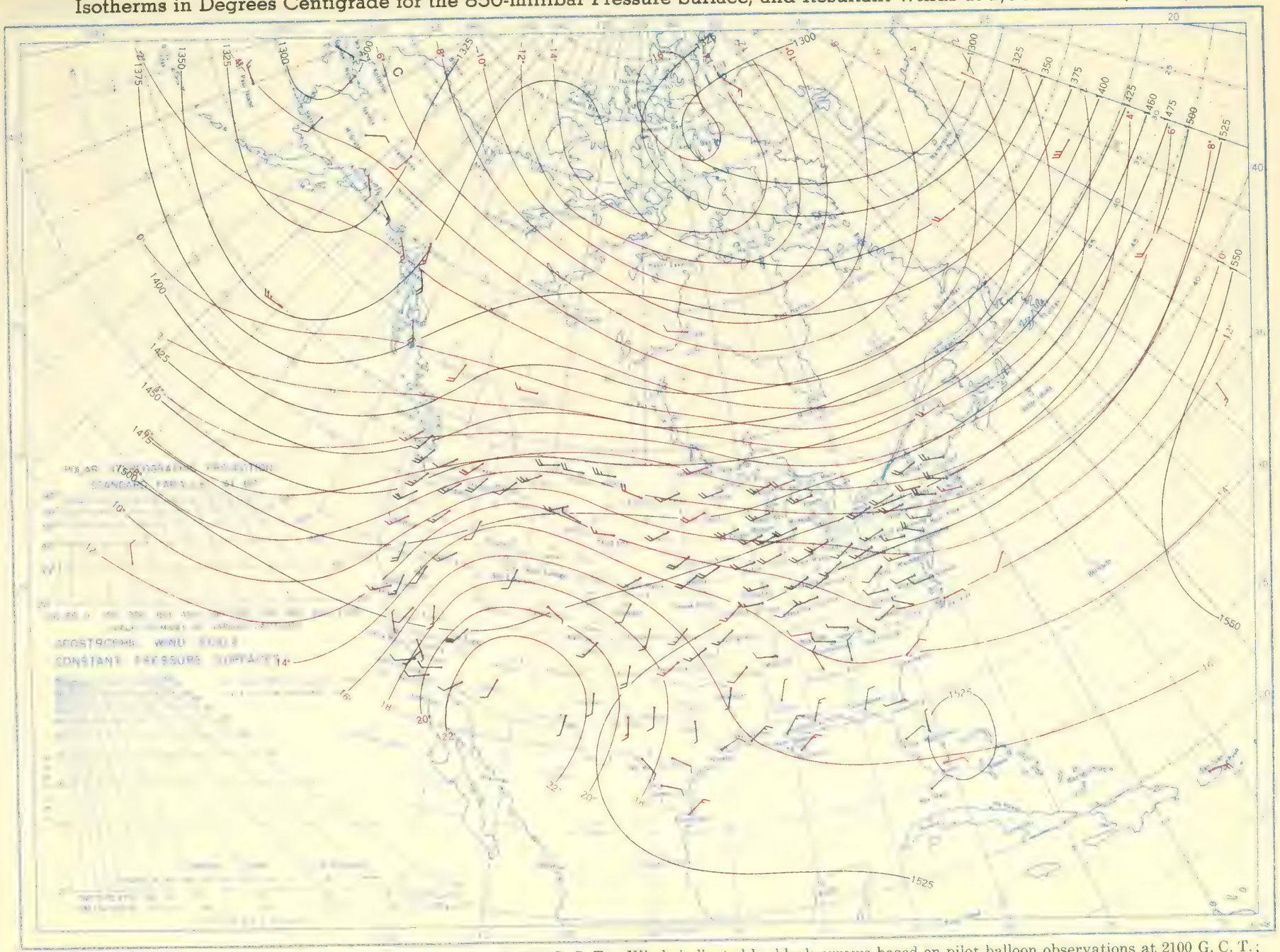
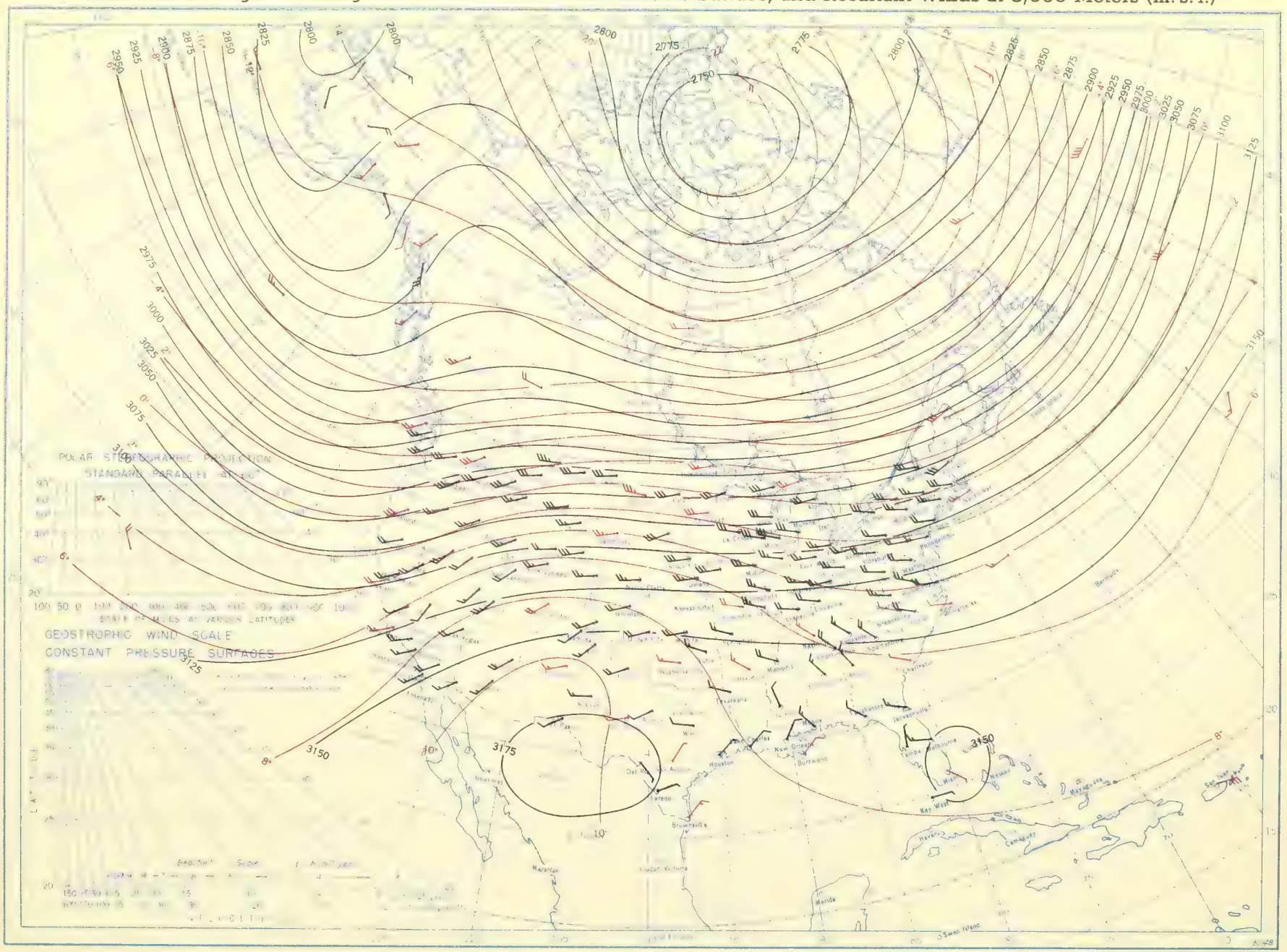


Chart VIII, October 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m. s. l.)



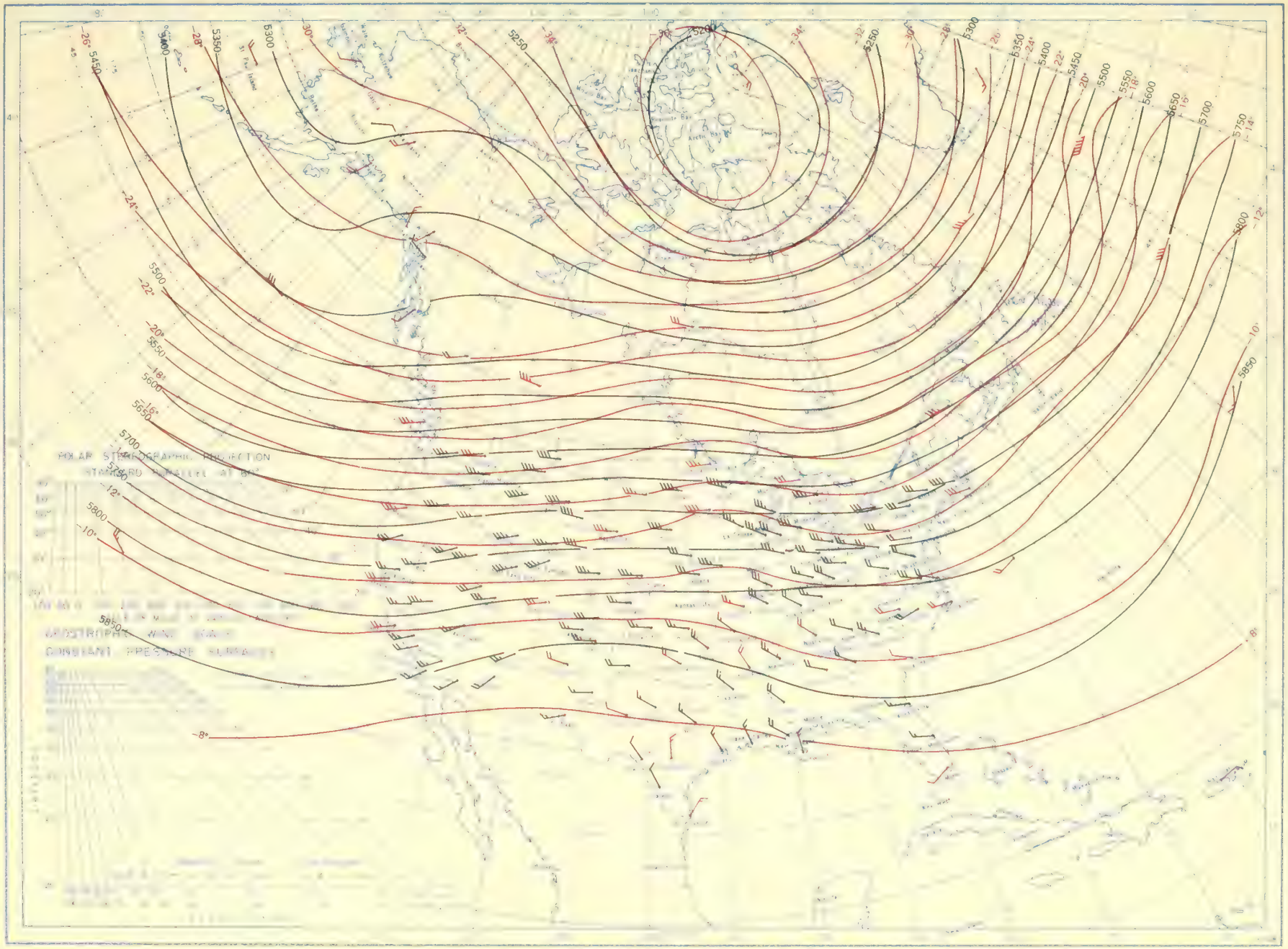
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart IX, October 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)



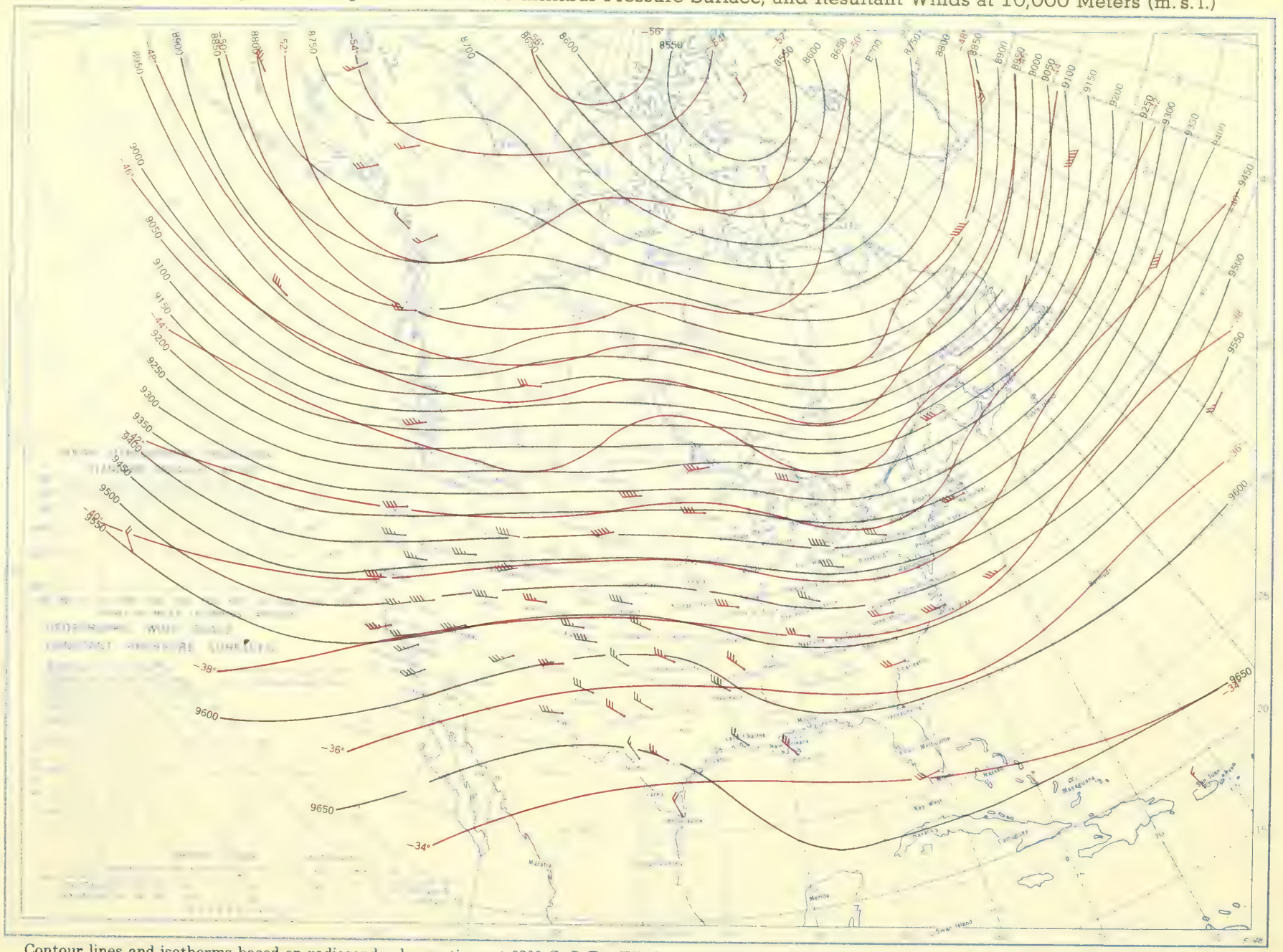
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart X, October 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, October 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

NOVEMBER 1950
Volume I No. 11

WASHINGTON: 1950

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CHARTS I-XI

NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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U. S. DEPARTMENT OF COMMERCE,
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA
NATIONAL SUMMARY

Volume I No. 11

NOVEMBER 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

This month's weather, more like that of winter than fall, was featured by great variations in temperature and precipitation. East of the Mississippi River an amazing number of record-breaking temperature extremes were recorded. Heavy precipitation in sections of the Northeast, in central California, and western Nevada was unprecedented in the latter two areas where many streams reached their highest flood stages on record, causing great property damage and considerable damage to crops. Frequent cold air invasions, especially east of the Rocky Mountains, brought freezes on several occasions deep into southern areas, two causing considerable crop damage locally. Drought conditions in parts of the Southwest and lower Great Plains were further aggravated by an almost entire lack of precipitation. During the last week this month's unusual weather was climaxed in the Midwest and Southeast by the most severe November cold weather on record and in the Northeast by the worst extra-tropical storm during historic times.

The weighted average November temperature for the United States was 40.5°, which is 2.9° below the 58-year mean. This low average was equaled in 1898, and averages were lower in 1911, 1929, and 1947. The lowest average on record was 39.1° in 1911. In the area between lines extending from Seattle, Wash. to Port Arthur, Tex. and from Buffalo, N.Y. to Cape Hatteras, Va., temperatures averaged below normal for the month,with minus departures generally ranging from 3° to 5°. Elsewhere monthly averages were above normal, with departures as much as 9° in the extreme Northeast and as much as 6° in the extreme Southwest. The month's lowest temperature, -34°, was recorded at Tabernash, Colo. on the 10th, and the highest, 100°, at Laguna Beach, Calif. on the 3d. Average monthly temperatures for individual stations ranged from 73.5° at Key West, Fla. to 16.2° at Hansboro, N.Dak. State average temperatures show this November to be the coldest on record in Indiana and Kentucky, and only.1° or.2° warmer than the coldest on record in Illinois, Tennessee, and Alabama.

East of the Rocky Mountains a late October heat wave which extended through the first 2 days of November was of such great intensity that previous record high temperatures for the month at most stations were either broken or closely approached. The previous all-time November high temperature records for a number of States or Sections were equaled or broken. These States or Sections, the new records and places and dates of occurrence, and the previous records and years of occurrence are listed below:

State or Section	New record	Station	Date	Previous record	Year
Delaware	88°	Lewes		82°	1929
Georgia	94°	Camp Stewart	1	92°	1935

-Continued-

State or Section	New record	Station	Date	Previous record	Year
Maryland	88°	Brookside Manor	1	87°	1913
	88°	Coleman	1		
	88°	Millington	1		
	88°	West Lanham Hills	1		
Michigan	84°	Wayne	1	80°	*1933
Minnesota	84°	Winnona	1	83°	1938
Missouri	90°	Camdenton	1	90°	1937
New England	84°	Windham, N.H.	2	79°	1928
	84°	Haverhill, Mass.	2		
New Jersey	88°	Elizabeth	1	83°	1929
New York	87°	Elmira	2	82°	1938
North Carolina	90°	Greenville	2	89°	1946
	90°	Oxford	2		
Virginia	90°	Buggs Island Dam	2	88°	*1929
Wisconsin	89°	Winter Park Reserv.	1	84°	1904

*Also previous years.

In New England the previous November high temperature record of 79° was exceeded at more than 50 stations, scattered through all the States of the section except Maine. Besides being exceeded at two stations in North Carolina the previous high November temperature record for the State was equaled at one other station.

In contrast to the abnormal high temperatures in the northeastern quarter of the country at the beginning of the month, new all-time November low temperatures were recorded at many midwestern and southeastern stations during the last week, establishing new all-time November lows for a number of States. The following table lists these States, the new record lows with places and dates of occurrence, and the previous records and years of occurrence:

State or Section	New record	Station	Date	Previous record	Year
Alabama	-2°	Valley Head	25	9°	*1914
Arkansas	0°	Mount Magazine	24	2°	1903
Georgia	0°	Blainsville	25	3°	1937
	0°	Jasper	25		
Indiana	-10°	Wheatfield	25	-9°	*1930
	-10°	Winamac	25		
Michigan	-23°	Pellston	24-25	-20°	1942
Mississippi	4°	Corinth	25	10°	1903
Missouri	-12°	Marble Hill	25	-9°	1932
South Carolina	-1°	Caesors Head	25	2°	1929
Tennessee	-8°	Allardt	25	-5°	1914
Virginia	-3°	Burkes Garden	25	-3°	1904

*Also previous years.

Due to the great contrast in temperatures in much of the same area, the monthly temperature range for November was the highest on record in 15 States, exceeding previous records by 1° to 13°.

The weighted average precipitation for the United States was 1.97 inches, only 0.07 of an inch below

A synoptic analysis of this month's weather appears in the November 1950 MONTHLY WEATHER REVIEW under the titles of:

"The Weather and Circulation of November 1950"
"The Destructive Storm of November 25-27, 1950"

the 58-year mean. Distribution, however, was very irregular, ranging from none to record-breaking amounts. Monthly totals were generally above normal in a belt extending from New England and eastern Michigan southwestward to the central Mississippi Valley, in a narrow strip across the extreme upper Lake region, in large areas of the northwestern quarter of the country, central and southwestern California, and western Nebraska. Totals were generally below normal elsewhere, with deficiencies especially pronounced in much of the Southwest, the lower Great Plains, much of the Southeast, and along the Gulf Coast. California's average precipitation for the month was 218 percent of normal and Pennsylvania's 224. Several other sections in the far West and Northeast received over 200 percent of their normal monthly amounts. The greatest monthly total measured at any station was 26.75 inches at Blue Canyon, Calif., and the greatest amount in 1 observational day was 11.91 inches at Highland, Calif. on the 18th.

A dry period that began during the first half of October in the Southwest and lower Great Plains continued through November. Practically no precipitation fell in the southern third of Arizona, and only 2 percent of the normal amount in the southern portion of New Mexico. Oklahoma and Kansas received less than one-fifth of their mean November precipitation, and the month was unusually dry in all sections of Texas. In southern Utah where drought conditions continued, the total precipitation from January 1 through November 30 at many stations was less than one-half of normal.

There was also considerable variation in snowfall. Although snowfall was frequent in Washington, Oregon, and western Montana, and the average of 9.1 inches for Washington was over twice the long-term mean for that State, the average in Idaho was below the mean, and Nevada's average of 7.0 inches was the lowest since 1936. In the Cascade Mountains a monthly total of 69 inches fell at Timberline Lodge, Oreg., 32 inches falling during a 24-hour period on the 16th and 17th. Six stations in Montana reported monthly totals in excess of 30 inches, with Glacier Park recording the greatest monthly amount, 59.1 inches, and Summit reporting the greatest depth on the ground, 36 inches on the 21st. Heavy snows also fell in the Wasatch Mountains east of Salt Lake City.

Snowfall was unprecedented in the Ohio Valley and in the central Appalachians, and in some sections of the Lake region monthly totals were higher than usual. Due to the great snowstorm on the 24th and 25th and lesser amounts on subsequent days, November averages for Indiana, Ohio, Kentucky, Tennessee, Pennsylvania and West Virginia were the greatest of record, and Illinois and Michigan received more than twice their usual amounts. Early season sleet or snow fell almost to the Gulf in a few southern States. In northern areas east of the Appalachians November snowfall was less than usual, New England's monthly average of 1.3 inches being only about one-third of the November mean.

During the first 3 weeks east of the Rocky Mountains brief warm periods were followed by cold air invasions that brought below-freezing temperatures deep into southern areas. Strong winds caused dust storms in North Dakota on the 5th; peak wind gusts of 60 m.p.h. were observed at Bismarck. The north-central States experienced a hard freeze on the 4th, and temperatures fell to as low as 15° in Kansas, Missouri and Iowa, and 14° in Minnesota. This was the first general killing freeze of the season i much of the lower Great Plains and Midwest. On th 3d Iowa received its first significant snowfall o the season, and snow or sleet which fell in part of Oklahoma, Missouri, and Arkansas was the firs of the season. On the 5th or 6th the cold ai brought below-freezing temperatures to the South east as far south as northern Florida and low tem peratures of 38° to 40° in the Everglades. This wa the season's first killing freeze in many south eastern areas. On the 4th and 5th a cold front LO which had developed over the central Gulf coasta Plains moved up over the Appalachians and the St Lawrence Valley causing moderate to heavy rains from northern Louisiana and central Mississipp to New England.

A second invasion of cold air, much more severe than the first and following a brief period of ris ing temperatures, first appeared on the 8th and 9t as a cold wave over the northern Rockies and Grea Plains, with near-blizzard conditions in portions of Montana and North Dakota. Minimum temperatures fell to subzero levels on the western plateaus as far south as northern New Mexico. A low temperatur of -18° was recorded at Drummon, Mont., and subzero minima were recorded in the Great Plains as far south as Kansas. On the 9th early season low tem perature records were broken at a number of stations in the Great Basin of the far West, and a few sta tions in south-central areas east of the Rockies recorded their lowest November temperatures on rec ord. This cold air invasion brought a killing freeze to all of Texas and the central Gulf States except in coastal areas. Many southwestern stations re corded their lowest temperatures of the month from the 10th through the 12th, and much of southern California and Arizona received their first frost of the season, with tender vegetables in California's Imperial Valley sustaining some damage. The advancing cold air was attended by thunderstorm activity in the Ohio and central Mississippi Valleys, and Indiana was the center of a heavy rainfall area. Some heavy snow fell in extreme northern areas. In Montana many secondary roads were blocked and main highways, except in the northeastern portion, were unusually icy and dangerous for several days. Roads were blocked for the first time during the fall season in Lower Michigan and a number of traffic deaths occurred on the night of November 10-11 during a snowstorm that deposited more than 20 inches of snow in Charlevoix County.

On the 15th and 16th a LOW gained strong intensity as it moved from the central Great Plains across the Lake region into Canada. Southerly winds in advance of the storm brought record high temperatures to several Midwestern stations. In central North Dakota roads were blocked by heavy snowfall up to 16 inches. High winds and heavy precipitation were general in the upper Lake region. In northwestern Upper Michigan and northern Wisconsin high winds, rain that turned to snow, and freezing rain disrupted utility lines, and 2 people were drowned in Saginaw Bay.

This storm was followed by another cold air invasion into the central interior and Southeast. On the 17th and 18th light snow fell as far south as the Carolinas, and minimum temperatures fell to below-freezing levels almost to the Gulf.

Still another cold air mass began pushing into the northern Great Plains on the 19th, reached the Gulf on the 20th, and on the 21st and 22d caused another freeze in southeastern areas as far south

as northern Florida. On the 20th a frontal low pressure area gained considerable intensity as it moved across the Midwest and Northeast. Moderate precipitation was general east of the Mississippi, with heavy amounts of 1 to 3 inches in the Ohio Valley and parts of the Northeast. These rains caused some flooding along the Wabash and White Rivers in southern Indiana. The rain turned to snow in the Northeast, leaving 1 to 4 inches of snow on the ground in the interior of New England and greater amounts in the mountains of both New England and New York.

The most unusual weather events in the far West after the freeze of November 10 to 12, were the record-breaking rains in California and Nevada, and unseasonably high temperatures in the extreme Southwest. Unusually heavy rainfall from November 16 to 24 between San Francisco Bay and Monterey Bay caused flooding of several streams, which resulted in about $415,000 damage in central coastal areas. In the lower Sacramento Valley rains in the foothills and mountain districts during the 18th to 21st were the heaviest on record so early in the season. Six-day totals ranged from 3 to 4 inches on the Valley floor to as much as 25 inches in the Yuha and American River Basins. Olivehurst, Linden Villa, Arboga, Nicholas, and suburban areas of Sacramento were damaged by flood waters. An estimated total of 16,250 persons in the Central Valley were evacuated from their homes. This was the wettest November at Sacramento since 1892.

In the lower San Joaquin Valley precipitation for the 18th and 19th totaled up to 15 inches in the mountains up to the 5500-foot level. Severe flooding resulted in excessive property damage and loss of livestock. Thousands of turkeys were drowned in the Centerville district due to floods on the 19th. The preliminary estimates of total damage in the Sacramento-San Joaquin River Basins amounted to $16,800,000.

An influx of warm, moist air from the southwest Pacific caused general rains in northern Nevada from November 13 to 20. The storm reached its peak on the 18th and 19th, when record-breaking 24-hour totals were registered at many stations in Douglas, Lyon, Ormsby, and Washoe Counties. This heavy rainfall along with mild temperatures completely melted the snow-cover, resulting in record-breaking floods in the Walker, Carson, and Truckee River Basins. Snowfall up to 14.5 inches during the early stages of the storm was melted on the 18th and 19th by high temperatures and rains. During this storm Carson City, Winnemucca, and a number of other stations recorded their greatest one-day precipitation for any month, and several others received their greatest daily amounts for any November. Stacked hay and livestock were lost in the lowlands, and property damage in Reno was estimated at $4,000,000.

SEVERE WEATHER CONDITIONS DURING THE LAST WEEK OF NOVEMBER 1950

From the 24th to the 26th the Northeast experienced one of the worst storms of extra-tropical origin ever to occur anywhere in the United States, and during the last week of the month the Midwest and Southeast endured the most severe November cold weather on record. In New England and the eastern portion of the Middle Atlantic States gale-force winds of record duration were accompanied by flood-producing rains, and coastal areas were swept by unusually high tides. Severe glaze occurred in central Pennsylvania, and snowfall in the upper Ohio Valley and the central Appalachians accumulated to record depths. This combination of weather extremes caused widespread damage and loss of life.

The extraordinary weather of this period began on the 22d when an extensive cold air mass over western Canada, with high pressure of 30.70 inches near the center, began moving into the northern Great Plains as a cold wave behind a week LOW that moved from the northern Plains to the Lake region. Accompanied by strong northerly winds, sharp temperature drops, and light to moderate snowfall, the cold air on the 23d spread eastward to the Appalachians and southward through the Great Plains to southern Texas, crossing Louisiana during the night of the 23d-24th. The temperature fell 45° in 19 hours at Minneapolis,Minn., and minima dropped to subzero levels from Montana and Wyoming to the Great Lakes and as far south as Nebraska. The frontal passage was marked by a series of thunderstorms in northeastern Arkansas and western Tennessee. Below-freezing temperatures extended to the northern half of Texas. Measurable snow fell as far south as Oklahoma and Arkansas, with snow and sleet continuing to fall over Arkansas and southeastern Missouri until the evening of the 24th, accumulating to depths as great as 5 inches in Missouri and 3.5 inches in Arkansas.

During the 24th and 25th the center of high pressure continued to move southward over the Great Plains and by the afternoon of the 25th had reached the western Gulf of Mexico, with cold air extending over southern Mexico, an unusual occurrence even in the winter months. By midnight of the 24th in north-central areas temperatures had fallen to subzero levels in northern Missouri, Illinois, Indiana, and Ohio. On the morning of the 24th a deepening center of low pressure in the southern Appalachian region speeded the flow of cold air into the Southeast to the extent that it moderated much less than usual before reaching that area, thus accounting in part for the record-breaking low temperatures. By midnight the southern portion of the cold front had swung far out over the Atlantic and extended southward into the West Indies. Temperatures reached their lowest levels in most areas on the morning of the 25th but in much of southern Florida lowest temperatures were not reached until the morning of the 26th or later. Temperatures in both the Midwest and Southeast, however, continued much below normal until the end of the month.

In Mississippi, Alabama, Georgia, and South Carolina previous November low temperature records were lowered at practically all stations. In Mississippi lowest temperatures ranged from 4° in the north to 23° on the coast. In Alabama November minimum temperature records were broken by 6° to 9° in most northern and central localities and by about 2° on the coast, with lowest temperatures ranging from -2° in the north to about 20° on the coast. In Georgia new minima for November were recorded in every part of the State, lowering previous records at many stations by as much as 5° to 10°; lowest temperatures ranged from 0° at Jasper and Blairsville Experiment Station to 21° at Brunswick; temperatures as low as 5° were recorded at most northern stations, and as low as 15° as far south as Albany, Alma, and Savannah. In South Carolina nearly all previous low temperature records for November were lowered, with lowest temperatures ranging from slightly below zero in the mountains

to about 17° on the coast; daily average temperatures on the 25th and 26th averaged about 25° below normal. Snow and sleet which fell in the northern portions of these States and at some southern stations in Alabama and Georgia, reached maximum depths of 5 inches in northern Mississippi, 4.5 inches in northern Georgia and 4 inches in northern Alabama.

Damage from the severe cold in these 4 States was widespread. Property damage consisted chiefly of frozen water pipes, radiators and blocks of automobiles and tractors, especially in southern sections where, due to the rarity of severe freezes so early in the season, proper precautions were not taken. Growing crops were killed or injured in most sections. In Georgia property damage was estimated at $2,000,000 and crop damage at $1,000,000. No statewide estimates are available for the other 3 States but the total was probably several million; in Alabama estimated damage in the Montgomery area alone was placed at $100,000. Crop losses, it is believed, will be offset largely by the advantages to be gained by next year's agriculture from the destruction of insects. The severe weather resulted in more than a score of deaths due to such causes as automobile accidents, burns, overexertion, and exposure.

In Florida temperatures ranged from 16° in the extreme northwest on the 26th to 30° on the 29th at Homestead which is several miles southwest of Miami, thus including practically the entire vegetable producing area of the State. In most areas the lowest temperatures occurred on the morning of the 26th and ranged from 31° to 34° in the Everglades and from 34° to 38° along the lower east Coast. Frost was generally very light due to some wind and unusually dry air. Tender vegetables generally suffered heavy damage, but damage to hardy varieties was limited to northern sections. Crop losses diminished southward, becoming negligible in Dade County. Citrus damage was largely confined to tangerines, while the color and flavor of oranges were improved.

The second phase of severe weather during this period was the intense storm and its attending phenomena which reached great extremes in the Northeast.

On the morning of the 24th a slow eastward-moving low pressure trough extending southward through western New York and Pennsylvania, connected centers of weak low pressure systems over the northern Lake region and the southern Appalachians. In the afternoon the southern center began to deepen rapidly over northern Georgia and the western Carolinas and by midnight had moved northeastward to south-central Virginia. Its further normal movement eastward or northeastward apparently blocked by an extensive HIGH centered over Labrador, it moved in a northerly direction across Virginia, the District of Columbia, and central Maryland into Pennsylvania and then curved northwestward across Pennsylvania into northeastern Ohio where, with diminishing intensity, its center described a complete curve recrossing its path in extreme northeastern Ohio during the afternoon of the 26th. By the morning of the 27th it had moved northward from northeastern Ohio across Lake Erie into Canada.

In Virginia, eastern and central Maryland, Delaware, and the District of Columbia winds reached their greatest speeds during the early morning hours of the 25th when the storm was centered over south-central Virginia. Speeds of 50 m.p.h. with gusts up to 70 m.p.h. were common. By 6 a.m. gale-force winds were general over New Jersey, continuing in the southern and central portions until mid-afternoon and in the northeastern section until 5 p.m. In Pennsylvania, New York, and New England increasing winds during the morning hours generally did not reach gale-force until later in the day or evening. Peak wind speeds generally were recorded in most areas on the 25th, but not until the early morning of the 26th in New England. The times of the fastest miles of wind at points along the coast are as follows: On the 25th--Cape Henry, Va., 3:0 a.m.; Baltimore, Md., 4:28 a.m.; Atlantic City, N.J. 8:02 a.m.; New York, N.Y., 8:10 p.m.; Boston, Mass. midnight. On the 26th--Burlington, Vt., 1:36 a.m. Portland, Maine, 6:15 a.m., and Eastport, Maine 10:01 a.m. Not including Mt. Washington where the highest winds were recorded, the highest 5-minute maximum of 72.7 m.p.h. was recorded at Upton, N. Y. the fastest mile of 82 m.p.h. at Newark, N. J.; and the peak gust of 110 m.p.h. at Concord, N. H. -- all on the 25th.

Wind damage was only slight in Virginia and the District of Columbia but was considerable in Maryland and Delaware, consisting chiefly of unroofed buildings, broken windows and signs, broken utility wires from falling limbs and uprooted trees, broken television antennaes, and damaged chimneys.

In New Jersey damage was widespread, far exceeding that of the 1938 hurricane, and was believed to have equaled that of the 1944 hurricane. The loss of life was greater than that in either hurricane. Apparently winds were weaker and damage less in the northwestern quarter of the State than elsewhere. Chief losses were damaged buildings, particularly roofs, and store fronts; power and communication lines and resulting losses from lack of heat, and of electricity for refrigeration; and destruction of shade, forest, and fruit trees.

The western half of Pennsylvania sustained similar damage. In Philadelphia many automobiles were damaged by fallen trees, many smokestacks were blown down, and 2 planes were damaged. The Philadelphia Electric Company reported that disruption of service was the worst in history.

For the State as a whole this was New York's most damaging storm on record. Although western and extreme northern portions suffered no serious major losses, damage in most other areas was severe. In addition to damage like that suffered in New Jersey and Pennsylvania several radio towers were blown down.

In New England this storm was defined as one of the worst on record, with local areas suffering greater property damage than in any other storm, but the 1938 hurricane still remains the most destructive of any New England storm. Damage was widespread, but the winds were less violent than in some other States. Much softwood timber was destroyed in Vermont and New Hampshire. In this storm gale-force winds were of much longer duration and of far greater areal extent than in either the hurricane of 1938 or 1944. A feature of the storm was that winds were as strong or stronger in the interior of both New England and New York than they were at exposed coastal stations.

Due to the winds occurring at the time of spring tides and their shifting from northeast and east through southeast and south, thereby becoming onshore at every point at some time during the storm unusually high tides occurred from Maryland and Delaware northward. In many areas the destruction caused by the tides exceeded that of the winds.

ccording to the U. S. Army Engineers the water t the mouth of the Delaware River rose slightly ore than 5 feet above the normal high tide.

High tides caused heavy marine losses, especially long the New England coast where even large vessels uffered great damage. Lobstermen and fishermen ost much of their equipment. Along the Maine coast hese losses were as high as 90 percent and valued t $1,350,000. Many low-lying coastal areas were nundated, and many inhabitants were forced to bandon their homes, particularly in the Delaware ay area and coastal areas of Long Island, N.Y. bout 300 families were forced to leave their homes n the Penns Grove-Pennsville area of New Jersey cross the River from Wilmington and New Castle. lany roads and highways were damaged and closed to raffic by high water.

Widespread heavy rains that fell during the time f high winds caused many damaging floods as well s augmenting the effect of the high tides. In ew Jersey 3 inches of rain fell at many stations uring the day of the 25th. The greatest amount as 6.57 inches recorded at Seabrook farms, and t least a dozen stations measured storm totals xceeding 4 inches. Rainfall in Pennsylvania reached t greatest intensity during the afternoon of the 5th over most of the eastern half, with a number f stations in the Reading-Scranton area reporting ecord 24-hour totals. The greatest 24-hour total n the State was 6.86 inches at Plattsville. A umber of stations in New York measured from 2 to ver 4 inches for one observational day; the greatst in the State was 7.78 inches at Slide Mountain n the 26th. Heavy precipitation was general over ew England with totals as much as 3 to 6 inches t many stations. The greatest amount recorded for l day was 6.04 inches at Pinkham Notch, N.H. on the 26th.

The heavy rains caused light to moderate flooding throughout most of eastern Pennsylvania. Moderate flooding occurred from the headwaters of the Alleghany River Basin to the Delaware River. In the Juniata River Basin the flood was the highest since the Great Flood of March 1936. In the Philadelphia area flood crests approached those of 1936, and much damage resulted from standing water being unable to run off rapidly enough by natural drainage. Flooding of plants cut off power and sometimes water from a number of cities.

Numerous flash floods occurred in smaller streams, especially in New York and New England. Heavy damage resulted from these floods in the Catskill area of New York, especially in Delaware and Ulster Counties where at least a score of homes and more than a dozen commercial buildings were destroyed and a number of bridges were washed away. Damage was estimated at $1,000,000. Flooding along the Genesee River in New York was the worst ever experienced at Wellsville. In western Massachusetts and Connecticut and in northern New England many residential areas were inundated.

The death toll resulting from the high winds, heavy rains, floods, and high tides was well over a hundred and injuries amounted to several hundred. The estimated damage from wind, floods, rains, and tides was $1,000,000 in Maryland and Delaware, over $5,000,000 in eastern Pennsylvania, $30,000,000 in New Jersey, $20,000,000 in New York, and $15,000,000 in New England. Losses were so widespread that accurate estimates were difficult, and it is probable that the total damage was much greater than these estimates.

Snow began falling late on the 23d from Lake Erie southward into Tennessee and continued at intervals until the end of the month in the more northern areas, but the heaviest fall in most areas was on the 25th. The greatest depths on the ground, however, were not reached in many areas until a day or two later. (The maximum depths are presented on a chart at the end of this article.) The heavy snow on the 25th was caused by the intense LOW which developed over the southern Appalachian highlands on the 24th and eventually curved northwestward into northeastern Ohio, bringing warm moist air over the Arctic air lying west of the Appalachians.

Heavy snow began in northeastern Ohio, western Pennsylvania, and in West Virginia on the 24th. By 7:30 p.m. snow in Ohio had accumulated to a depth of 5 inches at Akron, 3 inches at Cleveland, and 7 inches at Youngstown, and by the afternoon of the 25th, near-blizzard conditions prevailed over practically the entire State, lasting until the early morning of the 26th.

Traces of snow or sleet fell as far south as central Mississippi, Alabama, and Georgia, and even at some stations in the extreme southern portions of these States. Depths up to 5 inches were measured in northern Mississippi and 4.5 inches in northern Alabama and Georgia. Total snowfall progressively increased northward into West Virginia, Pennsylvania, and eastern Ohio where new records were established.

In Tennessee depths on the ground ranged from 2 to 8 inches. Transportation in several large cities was hampered or halted from 5 to 8 hours. At Knoxville a snowfall of 5.5 inches on the 24th was its greatest on record for November.

In Kentucky most of the month's snow fell during this period, bringing the State average up to 6.5 inches which is 6.0 inches above the mean and the greatest average on record for November. The greatest monthly amount was 21.5 inches at Benham, and the greatest depth on the ground was 18 inches at Cynthiana on the 27th. The snowfall in much of this State was unprecedented for November. Many roads were closed and there was much business interruption.

In Virginia heavy snow was confined to mountainous sections, as little more than flurries occurred east of the Blue Ridge. However, the snowstorm on the 25th and 26th was one of the worst November snows in regard to roads in the Great Valley. Schools were closed in 17 counties due to blocked roads, and trucks were either halted or delayed. The greatest amount on the ground during the month was 30 inches on the 29th at White Top Mountain.

In western Maryland one-day measurements of snow on the 25th ranged from 7 to 14 inches, but accumulations later reached 20 inches in places. Highway travel was halted for several days, due to winds redrifting roads almost as soon as they were cleared.

Although Indiana lay westward of the heaviest snow, deep snow blanketed the entire State on the 25th and 26th. Snow accumulated to depths of 10 to 18 inches in the eastern and northeastern counties and high winds caused deep drifts which blocked traffic. In the western part of the State depths generally were only 2 to 5 inches, but high winds caused much drifting and many secondary roads remained closed for several days. The average snowfall for the State was 7.6 inches or 1.1 inches

more than the previous greatest November average of 1932. The greatest monthly snowfall in this State was 19.5 inches at Winchester, and the greatest one-day measurement was 18 inches at Winchester on the 27th.

In much of Ohio this snowstorm broke all November records both as to depth and total snowfall. Although the heaviest snow fell on the 25th, the greatest depths generally were measured on the 28th. Depths ranged from 6 inches in the northwestern part of the State to over 2 feet in most eastern counties. The greatest depth on the ground was 33 inches at Geneva, followed by 30 inches at Steubenville. Highway travel was stalled from the evening of the 25th through the 26th. Some highway travel was possible on the 27th, but most stores, schools, and factories in large cities of the northeastern portion of the State remained closed through the 28th. Part of the roof of the Jefferson County Court House at Steubenville collapsed on the 25th, and damage from collapsing roofs was reported from some other cities. Nursery stock was damaged heavily, some nurserymen in Lake County describing it as the worst snowstorm ever to strike that area.

In western Pennsylvania snowfall was so heavy that snow plows were unable to keep roads open. Hundreds of cars and trucks were stalled on the highways. Many towns were isolated for 2 or 3 days before even one-lane traffic was resumed. Commerce and industry were paralyzed. Local shortages of food developed due to no deliveries. Radio was the only means of communication. Snowfall at Erie and Pittsburgh set new all-time 24-hour records. Hundreds of roofs collapsed from the weight of the snow. Little snow fell in the eastern half of the State but in the western half the average fall was 29.5 inches, and boosted the monthly State average to 11.0 inches, a new record. Erie's monthly total of 46.9 inches was its greatest monthly total on record.

West Virginia measured the greatest snowfall for the storm, 57.1 inches at Pickens No. 1. Small areas in Harrison, Lewis, and Marion Counties measured over 50 inches for the storm. Stations in at least 11 counties reported 40 inches or more. The southwestern and extreme southern part of the State averaged about 20 inches, the northeastern Panhandle about 5 to 10 inches, and the remainder of the State between 20 and 40 inches. Most snow fell from 24th to 27th, setting all-time records in much of the State for snowfall and snow depths. By the evening of the 25th nearly all transportation in the area of heavy snow was halted; some trains that did get through were hours late. Traffic was not back to normal until after the end of the month. One of the most costly features of the storm was loss of wages and losses due to curtailment of business. Undeliverable milk cost farmers heavily. Roofs and guttering of buildings were damaged. Total damage was estimated in excess of $1,500,000 in this State.

Another destructive feature of the weather during this period was severe icing. This was most severe in central Pennsylvania, but also occurred in northern Indiana and a few other areas. In Clearfield and Fulton Counties of Pennsylvania, mountain forests were damaged severely. Many power and telephone lines were downed, Altoona losing all power. In Clearfield, Elk, and Jefferson Counties where total damage was estimated at $3,100,000, 80 percent was caused by glaze.

In the eastern United States total damage during this period from snow, glaze, wind, severe cold, floods, and tides probably approached $100,000,000. The total number of deaths resulting either directly or indirectly from the adverse weather during this period was at least 200, with at least 85 major injuries, and hundreds of unreported minor injuries.

Special Notes on Severe Weather of November 24-27, 1950

Bridgeport (AP), Conn.: Evacuation was necessary from 7:30 p.m., 25th to 7:00 a.m., 26th due to inundation. High tides covered Airport to depths of 4 to 5 feet, inundating rain gages, etc. Storm apparently more damaging than the 1938 hurricane, especially to coastal areas.

Hartford (AP), Conn.: The fastest mile of wind, 70 m.p.h. from the east at 8:00 p.m. on the 25th, set a new record. Previous record was 62 m.p.h. from the north at 11:00 p.m. on September 24, 1944. Peak gusts of 100 m.p.h. were observed, but greater speeds may have occurred. Winds during this storm were stronger, more sustained, and of much longer duration than those during the September hurricanes of 1938 and 1944. Damage from storm, however, was less than from either of the two September hurricanes of 1938 and 1944.

New Haven (AP), Conn.: A new 5-minute maximum wind of 50 m.p.h. from north at 1:55 p.m. on the 25th set a new record; previous record was 49 m.p.h. on October 21, 1904.

Fort Wayne (AP), Ind.: A temperature of -1° on 24th and 25th was an all-time November low; previous record was 0° on November 30, 1929. Snowfall of 9.1 inches set a new all-time total for November; previous record was 6.2 inches in 1942.

South Bend (AP), Ind.: Temperatures of -6° on 24th and -7° on 25th were record lows for November; previous record was -4° on November 30, 1929. Blowing snow on all 4 days of 24th to 27th, inclusive, during periods of gusty winds. Snow, freezing rain, sleet, and rain from 7:01 a.m. through remainder of day on 25th.

Terre Haute (AP), Ind.: The maximum temperature of 9° on the 24th was a record low maximum for the month of November. The previous record was 18° in 1929 and 1930.

Louisville (AP), Ky.: Minimum temperature of -1.2° on the 25th was a record November low; previous record was 1.2° on November 30, 1929. Considerable drifting of snow on 26th.

Lexington (AP), Ky.: Worst feature of storm was extreme wind and blowing snow from 4:00 p.m. November 25 to 2:00 p.m. November 26. During much of this time visibility was 1/4 mile or less and the wind 30 m.p.h. or stronger. Snow was a grandular, dry type that drifted badly by wind gusts up to 56 m.p.h. Snow packed so tightly that drifts would support the weight of an adult weighing about 140 pounds. In the open about an inch of snow covered ground, but in protected places drifts of 8 to 10 feet deep were common. Minimum temperatures of 3° on November 24, and -3° on the 25th were record low temperatures for those days and also for so early in the autumn. Temperature rose slowly and constantly from 8:00 a.m. of 25th until evening of 26th when it reached 27° and held nearly constant for 3 days.

Eastport (CO), Maine: A severe windstorm on 25th and 26th, accompanied by rain, swept through this

area causing minor damage to property and some flood damage.

Portland(AP),Maine: Storm on 25th and 26th brought the highest sustained winds ever recorded in Portland, but the gusts had been exceeded twice previously. Wind damage amounted to about $500,000 in city.

Escanaba (CO),Mich.: Maximum 5-minute wind speeds of 44 m.p.h. from north on 25th and 45 m.p.h. from north on 26th were highest of record for November, previous record was 43 m.p.h. from south in 1940. Minimum temperature of -7° on 25th lacked 2° of setting new low record for so early in season; actual record is -9° on November 22, 1880. Light snow drifted considerably by strong winds.

Grand Rapids (AP), Mich.: Peak gusts was 48 m.p.h. at 7:30 p.m., e.s.t. on 25th. Blowing snow reported more or less continuously from 12:20 a.m. on the 25th to 3:00 a.m., e.s.t. on the 26th. Temperature of -10° on 25th was lowest temperature ever recorded so early in the season.

Concord (AP), N.H.: A severe storm with high winds on the 25th and 26th tore down power and telephone lines, uprooted trees, killed livestock, and damaged or destroyed buildings, boats, and aircraft. A peak wind gust of 110 m.p.h. destroyed the unused control tower on the roof of the administration building at Concord Airport.

Gorham, N.H.: When a 160 m.p.h. wind gust from southeast was recorded at 3:35 a.m. the 26th on Mt. Washington, the wind recording device was recording at its limit. The 3.44 inches of precipitation on 25th and 26th was a new all-time high 24-hour maximum for November, exceeding the previous high by 0.43 of an inch recorded in 1943. Practically all of the maximum 24-hour precipitation fell as freezing rain (temperature varied from 25° to 31°).

Atlantic City (CO),N.J.: Considerable flooding in city and vicinity. Municipal damage in city slight but private property damage about $1,500,000. In Ocean City municipal damage was about $175,000 and private property damage about $75,000 to $100,000. In Atlantic City and Ocean City no loss of life or personal injury.

Newark (AP),N.J.: Wind records at this station too imcomplete for positive comparison. Fastest mile was 82 m.p.h. from the east at 3:46 p.m. on 25th; previous record 66 m.p.h. from north-northwest on September 14, 1944. Peak gust was 108 m.p.h. from the east at 3:46 p.m. on 25th; previous record, 90 m.p.h. in 1944. The peak gust of 108 m.p.h. was a visual observation.

Trenton (CO),N.J.: Heavy rainfall on 25th was accompanied by whole-gale winds with gusts of hurricane force. Damage in Trenton and vicinity was greatest of Weather Bureau record. Fastest mile of 64 m.p.h. on 25th broke record for month of November; previous record for the month being 59 m.p.h. from west on November 14, 1925.

Albany (AP),N.Y.: A 5-minute maximum wind speed of 66 m.p.h. from east at 6:53 p.m. on 25th broke the previous record of 59 m.p.h. from northwest in January 1879.

Buffalo (AP),N.Y.: By close of month snow accumulated to depths of 2 feet south of the City with much drifting, closing some secondary roads.

New York (CO),N.Y.: Neither rainfall nor wind speeds set new local records, but storm was one of greatest ever experienced in the New York area. The duration of strong winds was higher than in any other storm.

Oswego (CO),N.Y.: New maximum 5-minute November wind speed record of 43 m.p.h. from southeast at 7:06 p.m. on 25th; previous record, 40 m.p.h. on 2d in 1921. This was also the highest for any month since 44 m.p.h. was recorded on October 14, 1893, with the exception of 47 m.p.h. from northwest on August 6, 1926 during a thundersquall.

Rochester (AP),N.Y.: Fastest mile of 59 m.p.h. from east at 4:22 p.m. on 25th was a new November record; previous record was 47 m.p.h. from southwest in 1948. In Rochester area residents reported the lake level higher than ever before in their memory, and waves were said to reach a height of 8 to 10 feet.

Syracuse(AP),N.Y.: The 5-minute maximum wind speed of 50 m.p.h. from east at 7:14 p.m. on 25th set a new November record; previous record was 49 m.p.h. from south on November 28, 1945. Fastest mile of 59 m.p.h. from east at 7:14 p.m. was also a new November record; previous record was 54 m.p.h. from southeast on November 10, 1942. Gusts of 90 m.p.h. from east at 8:43 p.m. on 25th also a new record; previous record 70 m.p.h. The average hourly speed for November 25, 1950 of 33.3 m.p.h. is probably the highest sustained speed of record for any 24-hour period.

Upton (CO),N.Y.: The peak gust of 100.4 m.p.h. was a record, but period of record only 2 years.

Akron-Canton Airport, Ohio: Snowfall continued with only a break of one hour for a period of 60 hours from the 24th to 8:00 p.m. on 26th. Much of snow was light and with little water content and therefore drifted badly, filling in plowed areas before the snow plows could return for a second time. Snow removal crews suspended operations until the snow and wind diminished. The total monthly snowfall of 22.3 inches was heaviest for November since beginning of record in 1887, and also one of heaviest for any month since 1887. Previous record for November was 20 inches in 1913.

Cincinnati (CO),Ohio: Important snowfall began at 11:40 a.m. on 25th. The snowstorm was the second heaviest ever recorded in Cincinnati for November, and snow remained on ground longer than any previous November snowfall. Total snowfall was 7.8 inches. On November 26 the heavy snowfall made 1950, with 35 days remaining, already Cincinnati's wettest year during an 80-year record.

Cleveland (AP),Ohio: Snowfall during November 24 to 27, 1950 brought the monthly total to a new record for the month of November. The total of 22.3 inches exceeded the previous record in November 1913 by 0.1 inch. Total snowfall for this storm, 21.1 inches, was only slightly below the all-time greatest snowfall for one storm which totaled 22.2 inches on November 9 to 11, 1913 - this record is for a period of 80 years. The monthly snowfall of 22.3 inches was more than half the seasonal normal.

Columbus (AP), Ohio: Total snowfall was 11.7 inches on November 25. This was the heaviest snowstorm on record for November. Previous record was 8.0 inches on November 16 and 17, 1920. There were only two other storms that were heavier for any month - 15.3 inches on February 16 and 17, 1910 and 12.7 inches on January 6 and 7, 1910.

Dayton (AP),Ohio: The lowest temperature was 2.6° on November 25. This was a record low for so early in the season, the previous record being 8° on November 16, 1883, by a cooperative observer. Previous Weather Bureau record was 11° on November 20,

1914. The 10-inch snowfall in 24 hours on November 24 and 25 broke the previous record of 9.0 inches, set on February 20 and 21, 1912. Twelve inches were measured on the ground on November 28, the greatest amount measured since January 1918, and the record for depth on ground for November. This was the worst blizzard on record for Dayton. Although snow removing crews were on duty at the beginning of the snowstorm, clearing was ineffective on the 25th due to severe drifting which amounted to several feet on most roads so that all roads and streets were completely blocked for traffic early on the 26th. Main thoroughfares became passable during 26th, but many side roads and streets were impassable for several days. Thousands of autos were stalled during the evening of the 25th and occupants were forced to spend the night in the cars or, as was generally true, at nearby dwellings. Lowest sea-level pressure of 29.05 inches on 26th set a new November record. Wind averaged more than 42 m.p.h. during a 10-hour period. Thunderstorms were reported by several people in the city of Dayton during night of 25th.

Youngstown (AP),Ohio: Temperature dropped to 6° on November 25 and 26. This is the lowest temperature recorded in November since the Weather Bureau opened in 1943. Total snowfall was 28.7 inches on November 24 and 25, the heaviest on record (records dating earlier than 1943 are not available). Snow fell continuously from 10:28 p.m., the 23d to 10:35 a.m., the 25th. The snow reduced visibility to less than 1 mile from 8:26 a.m. the 24th to 10:37 a.m., the 25th, and 1/4 mile from 3 a.m. to 10:02 a.m. the 25th.

Allentown (AP),Pa.: The 24-hour precipitation of 2.70 inches on the 25th is the greatest for November in the 7 years of record at the airport.

Curwensville (AP),Pa.: From 1/2 to 3/4 inch of ice or glaze from 12:40 a.m. to 1:00 p.m., the 25th.

Erie, Pa.: A snowfall of 26.7 inches on November 24 and 25 was the heaviest fall on record for 2 consecutive days. The previous record was 26.5 inches on December 11 and 12, 1944.

Harrisburg (AP), Pa.: The fastest mile, a speed of 58 m.p.h. on November 25, established a new all-time record for the airport station where the period of record is only 7 years.

Philadelphia (CO),Pa.: The fastest mile, a speed of 57 m.p.h. from the southeast on November 25 at the city office, broke the old 39-year November record of 55 m.p.h. The all-time extreme for a 29-year period was 77 m.p.h. from north in July, 1931.

Pittsburgh (AP), Pa.: A new record for total snowfall of 32.3 inches was set for November. The previous November record of 14.7 inches was in November 1913. Total storm snowfall for the period November 24 to 29 was 31.3 inches. Previous storm record was 17.8 inches on February 13 and 14, 1940. Maximum 24-hour snowfall on November 24 and 25 was 17.5. Previous 24-hour total, December 18, 1890 and January 8, 1884, was 16.5 inches. Greatest snow depth on ground was 23.0 on November 27. Previous greatest depth was 16.3 inches on February 14, 1940 and March 3, 1942.

Reading (CO),Pa.: The maximum 24-hour precipitation of 6.08 inches on November 25 broke the previous record of 5.45 inches recorded on August 17 and 18, 1919. The 5-minute maximum wind speed of 59 m.p.h. from the east on November 25 broke the previous November maximum speed of 48 m.p.h. from the northwest on November 13, 1942.

Williamsport (AP), Pa.: A peak gust of 77 m.p.h. from the east at 9:25 a.m. on the 25th was a record during a period of 5 years.

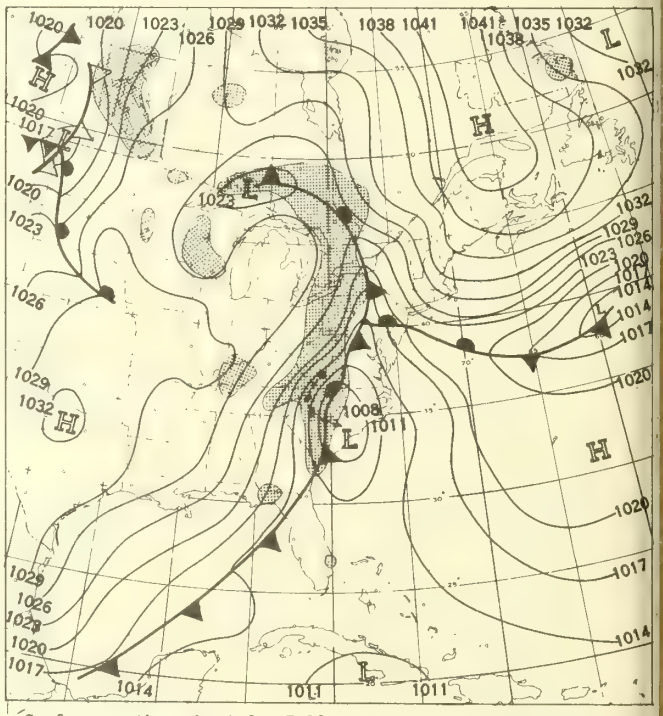
Burlington (AP),Vt.: A maximum 5-minute wind speed of 63 m.p.h. from the southeast at 12:35 a.m. on the 26th is a new record; previous record was 54 m.p.h. from south on March 26, 1908. The fastest mile of 72 m.p.h. from the southeast at 12:36 a.m. on the 26th and the peak gust of 75 m.p.h. from southeast at the same time were probably new records - not all records for past years are available.

Elkins (AP), W. Va.: The total snowfall of 29.5 inches for the period, 24th to 27th, exceeded the previous greatest amount for a single storm of 20.5 inches on November 9 to 11, 1913.

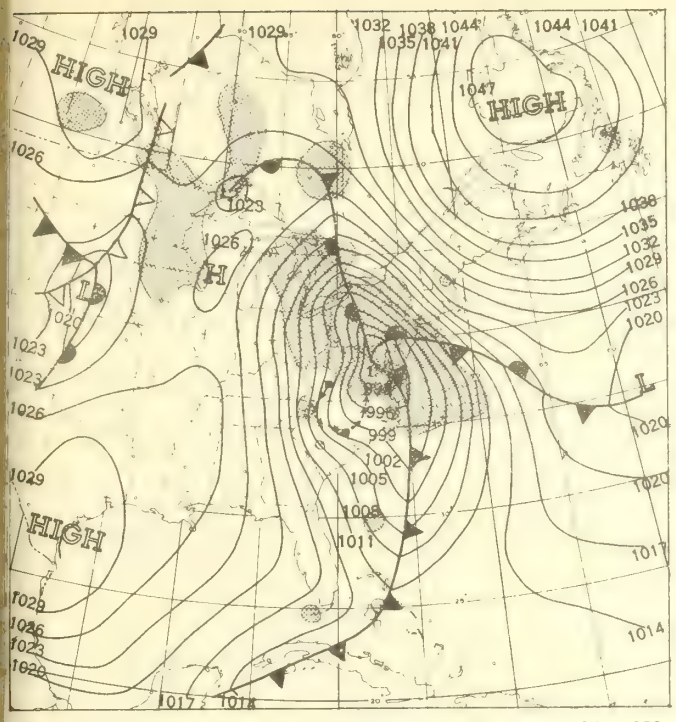
Parkersburg (CO),W. Va.: The 28.3 inches of snow on the ground on the 27th was a new record. The old record was 18.3 inches on December 17, 1890.

Petersburg (AP),W. Va.: Beginning at 9:10 p.m. the 24th and continuing more than an hour was a heavy thunderstorm accompanied by sleet and snow. The thunder was extremely heavy, and several people thought there was an earthquake because of trembling buildings.

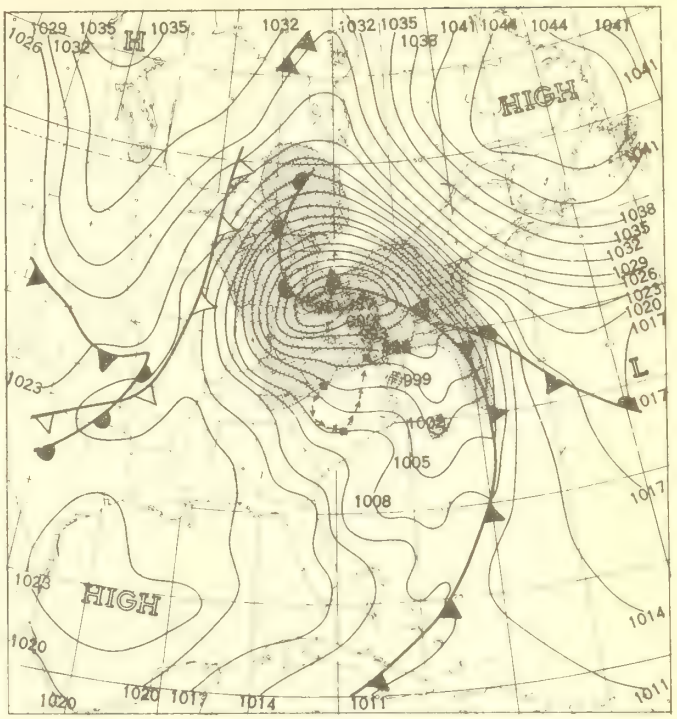
Green Bay (AP),Wis.: Temperatures of -5.6° on 23d, -6.8° on 24th, and -7.3° on 25th were all daily records. This was first time zero temperatures were recorded before November 25 in 64 years of record.



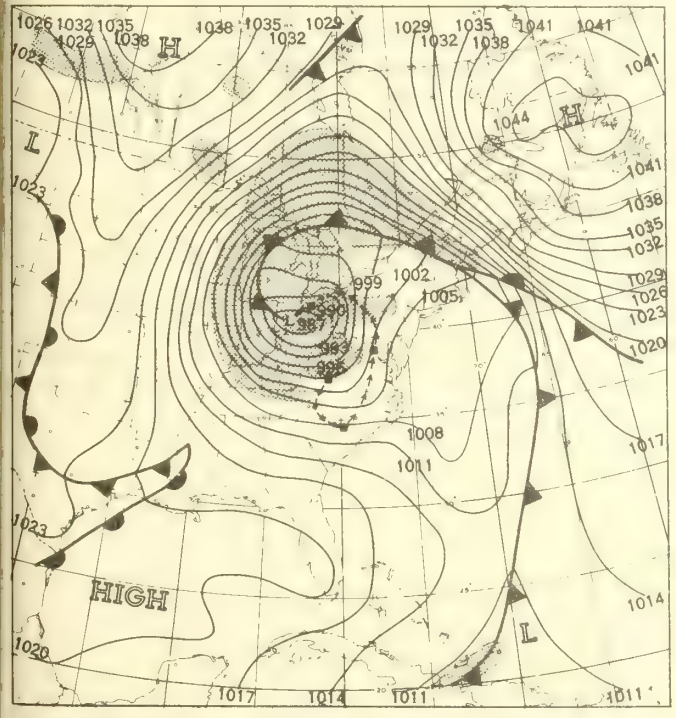
Surface weather chart for 7:30 p.m., e.s.t., November 24, 1950. Small squares connected by arrows indicate past positions of main LOW at 12-hour intervals.



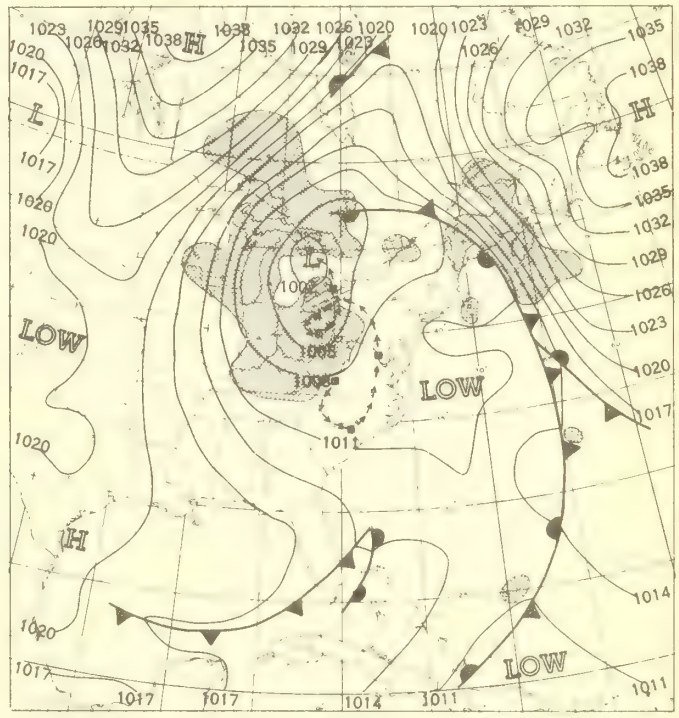
Surface weather chart for 7:30 a.m., e.s.t., November 25, 1950. Small squares connected by arrows indicate past positions of main LOW at 12-hour intervals.



Surface weather chart for 7:30 p.m., e.s.t., November 25, 1950. Small squares connected by arrows indicate past positions of main LOW at 12-hour intervals.

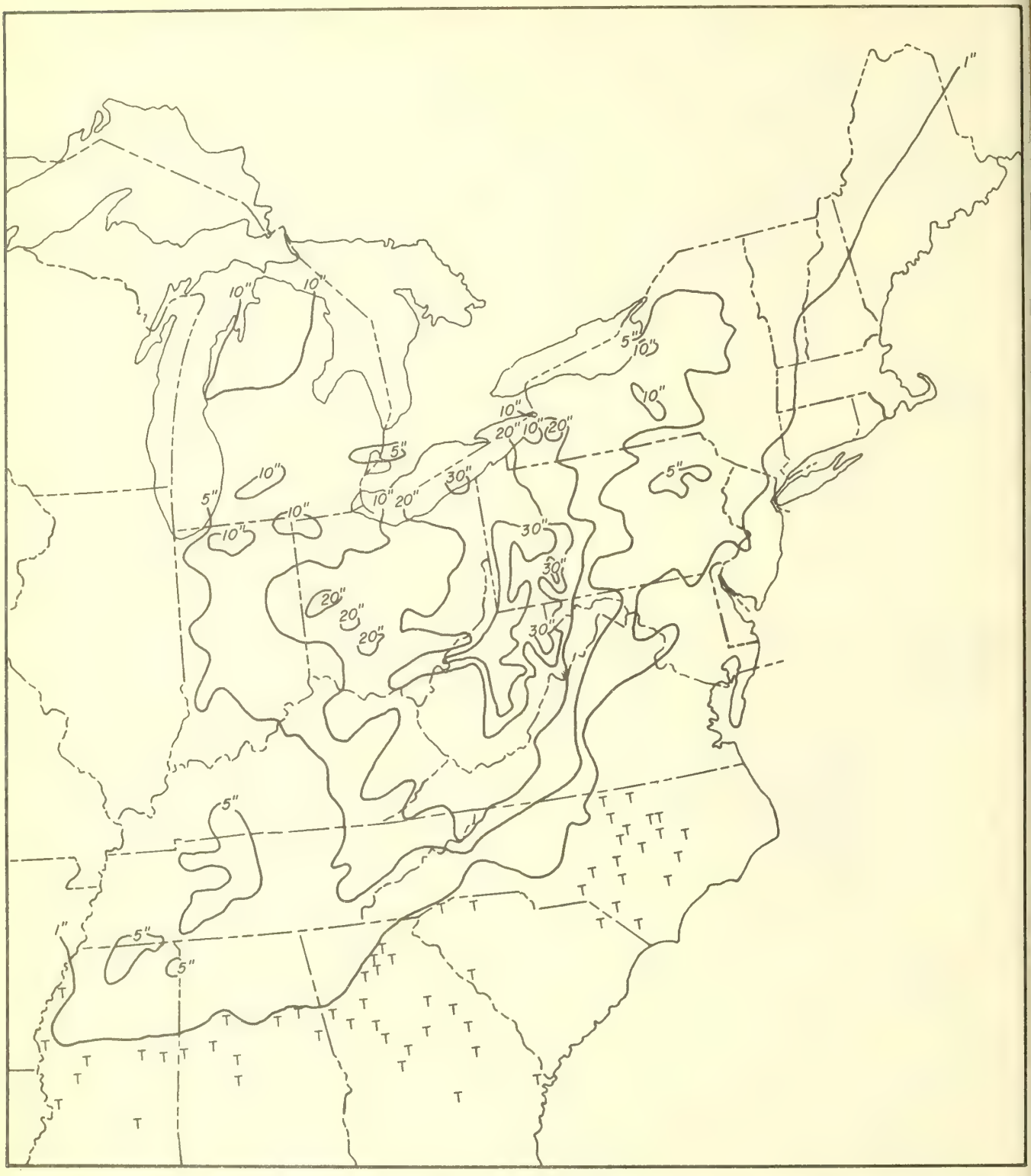


Surface weather chart for 7:30 a.m., e.s.t., November 26, 1950. Small squares connected by arrows indicate past positions of main LOW at 12-hour intervals.



Surface weather chart for 7:30 a.m., e.s.t., November 27, 1950. Small squares connected by arrows indicate past positions of main LOW at 12-hour intervals.

MAXIMUM DEPTHS OF SNOWCOVER, NOVEMBER 24-30, 1950



A T (trace) is used to show the extent of snowfall in Mississippi, Alabama, Georgia, and the Carolinas where accumulations were less than 1/2 inch. Depths of 5 inches or more in Upper Michigan not outlined as considerable snow accumulated in that area prior to November 24.

TEMPERATURE, WIND, AND PRECIPITATION DATA FOR STORM DURING NOVEMBER 24-27, 1950

NOVEMBER 1950

State and Station	Temperature		Wind												Precipitation							
			5-Minute Maximum				Fastest Mile				Peak Gusts											
	Lowest	Date	Speed	Direction	Time	Date	Speed	Direction	Time	Date	Speed	Direction	Time	Date	Total	Total snowfall	Maximum 24-hour precipitation	Date	Maximum 24-hour snowfall	Date	Greatest snow depth on ground	Date
CONNECTICUT																						
Bridgeport AP	32	27	--	---	-----	--	62	E	1727E	25	88	E	1551E	25	1.36	0.0	1.43	25-26	0.0	--	0.0	--
Hartford AP	34	27	50	E	2000E	25	70	E	2000E	25	100	ESE	1643E 1645E 1840E 1927E	25	2.23	T	2.14	25	T	24-27	.0	--
New Haven AP	32	24	50	SE	1355E	25	57	E	1356E	25	77	SE	1645E	25	1.49	.0	1.25	25	.0	--	.0	--
ILLINOIS																						
Chicago AP	-2	24	38	N	2055C	25	47	N	2058C	25	53	N	2324C	25	.46	4.7	.46	26	4.7	26	4.0	26
INDIANA																						
Evansville AP	-3	25	25	W	2323C	25	27	W	2323C	25	---	---	-----	--	.08	.8	.07	26	.7	26	2.0	24-27
			25	W	0033C	26																
Fort Wayne AP	-1	24-25	34	NW	2058C	25	36	NW	2058C	25	---	---	-----	--	1.03	9.1	.81	25-26	7.1	25-26	8.0	27
Indianapolis AP	-2	25	--	---	-----	--	--	---	-----	--	60	WNW	0209C	26	.34	3.5	.23	25-26	2.3	25-26	3.0	26-27
South Bend AP	-7	25	--	---	-----	--	42	NNW	2127C	25	63	NNW	2127C	25	2.26	9.8	1.85	26	5.9	25-26	6.4	27
Terre Haute AP	-4	25	31	NW	0920C	26	34	W	0920C	26	41	NW	0927C	26	.23	3.6	.21	25-26	3.5	25-26	4.0	26
KENTUCKY																						
Louisville CO	1	25	--	---	-----	--	--	---	-----	--	---	---	-----	--	.31	3.1	.25	25-26	2.5	25-26	----	--
Louisville AP	-1	25	31	W	0009C	26	41	W	1904C	25	---	---	-----	--	.37	3.7	.36	25-26	3.6	25-26	4.0	26-27
Lexington AP	-3	25	--	---	-----	--	--	---	-----	--	56	WSW	2000C	25	.68	8.2	.45	25-26	5.2	25-26	8.0	27
MAINE																						
Caribou AP	10	24	--	---	-----	--	35	E	0430E	25	---	---	-----	--	1.09	.0	.94	26-27	.0	--	.0	--
Eastport CO	31	24	49	SE	0958E	26	52	SE	1001E	26	---	---	-----	--	1.41	.0	1.26	27	.0	--	.0	--
Portland AP	29	24	58	SE	0615E	26	66	E	0615E	26	76	ESE	0617E	26	1.84	.0	1.72	26	.0	--	.0	--
MARYLAND AND DELAWARE																						
Baltimore, Md. CO	18	26	47	E	0443E	25	55	E	0428E	25	---	---	-----	--	1.65	.5	1.65	24-25	.5	25	T	25
Baltimore, Md. AP	15	26	--	---	-----	--	--	---	-----	--	68	E	0406E	25	1.53	.5	1.51	25	.5	25	T	25
Frederick, Md. AP	14	27	--	---	-----	--	25	W	0825E	25	35	W	0825E	25	1.58	1.0	1.52	25	1.0	26	1.0	27
Wilmington, Del. AP	18	26	--	---	-----	--	--	---	-----	--	58	ESE	0827E	25	2.78	.2	2.76	24-25	.1	26	.1	26
MASSACHUSETTS																						
Boston AP	35	24	62	SE	0001E	26	80	SE	0001E	26	86	ESE	0001E	26	1.92	.0	1.85	25-26	.0	--	.0	--
Nantucket AP	42	24	44	E	1951E	25	47	E	1951E	25	65	E	1400E 1500E 1610E	25	2.61	.0	2.38	25-26	---	--	----	--
Pittsfield AP	25	27	--	---	-----	--	--	---	-----	--	---	---	-----	--	2.85	T	2.80	25	T	24	.0	--
MICHIGAN																						
Alpena CO	1	24	30	N	2318E	25	34	NE	0303E	26	---	---	-----	--	1.96	12.2	1.61	25-26	6.6	25	6.0	25
Detroit AP	7	24	36	N	1231E	25	38	N	1318E	25	45	NNW	1128E	25	.99	6.4	.90	25-26	5.5	25-26	5.0	26-27
Escanaba CO	-7	24	45	N	0030C	26	56	N	2307C	25	---	---	----	--	.18	3.0	.12	26-27	2.3	26-27	5.0	27
Grand Rapids AP	-10	25	25	N	2117E	25	28	N	2117E	25	---	---	-----	--	.65	8.3	.56	25-26	4.7	25-26	8.0	27
Lansing AP	-2	25	34	NW	2218C	25	47	NW	2220C	25	60	NNW	2228C	25	.74	8.8	.58	25-26	6.1	25-26	6.0	26
Marquette CO	1	24	32	N	0143C	26	33	N	0144C	26	---	---	-----	--	1.41	13.6	1.06	26-27	11.5	26-27	14.0	27
Muskegon AP	-14	25	--	---	-----	--	25	N	1810E	25	40	NNW	2211E	25	.79	9.4	----	--	----	--	8.0	24-26
Sault Ste. Marie AP	3	24	28	NE	0735E	26	30	NE	0736E	26	35	NE	0725E	26	.57	4.7	.36	25-26	2.1	25-26	10.0	26
Ypsilanti AP	2	24	--	---	-----	--	40	NW	1216E	25	62	NW	1308E	25	.59	4.0	.59	25-26	4.0	25-26	5.0	26
NEW HAMPSHIRE																						
Mt. Washington	13	24	--	---	-----	--	--	---	-----	--	160	SE	0335E	26	3.87	3.2	3.44	25-26	2.4	26	7.0	27
Concord, N.H. AP	11	23	--	---	-----	--	72	---	-----	26	110	---	-----	26	2.32	0.0	2.24	25-26	0.0	--	.0	--
NEW JERSEY																						
Atlantic City CO	27	26	66	E	0759E	25	72	E	0802E	25	---	---	-----	--	2.70	T	----	--	----	--	----	--
Newark AP	26	26	--	---	-----	--	82	E	1546E	25	108	E	1546E	25	2.74	T	2.74	25	T	26-27	T	26-27
Trenton CO	22	26	56	SE	1305E	25	64	E	1045E	25	---	---	-----	--	2.34	.3	2.31	25	.3	27	T	27
NEW YORK																						
Albany AP	25	24	66	E	1853E	25	70	E	1853E	25	83	E	1900E 1926E	25	1.08	.0	1.08	25	.0	--	.0	--
Bear Mountain	21	26	--	---	-----	--	--	---	-----	--	140*	ESE	1820E	25	1.70	.0	1.64	25-26	.0	--	T	26
Binghamton CO	20	26	29	E	1150E	25	33	E	0933E	25	---	---	-----	--	1.94	1.8	1.87	25	1.7	26	2.0	26
Binghamton AP	18	27	--	---	-----	--	46	NE	1627E	25	70	ENE	1127E	25	1.68	.9	1.64	25	.9	26	1.0	26
Buffalo AP	17	26	43	E	1714E	25	49	E	1730E	25	72	ENE	1728E	25	.87	3.9	.60	24-25	3.0	24-25	2.0	24

* Estimated

TEMPERATURE, WIND, AND PRECIPITATION DATA FOR STORM DURING NOVEMBER 24-27, 1950 - Continued

State and Station	Temperature		Wind												Precipitation							
			5-Minute Maximum				Fastest Mile				Peak Gusts											
	Lowest	Date	Speed	Direction	Time	Date	Speed	Direction	Time	Date	Speed	Direction	Time	Date	Total	Total snowfall	Maximum 24-hour precipitation	Date	Maximum 24-hour snowfall	Date	Greatest snow depth on ground	Date
La Guardia Field AP	30	26	61	SE	1545E	25	68	SE	1546E	25	94	ESE	1710E	25	2.09	T	2.08	25	T	27	0.0	--
Int. Airport	29	26	--	---	-----	--	--	---	-----	--	94	E	1124E	25	1.35	T	1.32	25	T	26	T	--
New York WBO	27	26	47	S	2019E	25	59	S	2010E	25	76	E	1505E	25	2.29	.0	2.29	25	.0	--	.0	--
Oswego CO	25	27	43	SE	1906	25	48	SE	1906	25	---	---	-----	--	.63	.6	.52	25	.6	26	1.0	26
Rochester AP	21	26-27	45	E	1619E	25	59	E	1622E	25	59	E	1622E	25	1.58	1.8	1.15	25	1.8	24	2.0	24-25
Syracuse AP	25	27	50	E	1914E	25	59	E	1914E	25	90	E	2043E	25	.80	.4	.78	25	.4	26	1.0	24
Upton CO	30	27	73	E	1855E	25	--	---	-----	--	100	E	1859E	25	4.90	T	3.93	25	T	26	.0	--
OHIO																						
Akron Canton AP	7	24	--	---	-----	--	--	---	-----	--	43	NW	0900E	25	1.29	18.6	.51	24-25	6.6	25	17.0	27
Cincinnati CO	5	25	--	---	-----	--	--	---	-----	--	---	---	-----	--	.78	7.8	.61	25-26	6.1	25-26	7.0	26
Cleveland AP	7	24	32	NW	1014E	25	35	NW	1014E	25	49	NNW	0527E	25	2.51	21.1	1.94	24-25	15.0	24-25	21.0	27
Greater Cincinnati AP, Boone Co, Ky.	0	25	--	---	-----	--	40	W	2125E	25	55	W	2125E	25	.65	6.8	----	--	6.1	25-26	7.0	27
Columbus AP	5	25	--	---	-----	--	30	NW	0745E	25	40	NW	0745E	25	1.30	12.7	.94	25-26	8.2	25-26	13.0	27
Columbus CO	7	25	29	W	1827E	25	32	W	1829E	25	---	---	-----	--	1.18	11.7	.83	25	7.5	25	12.0	27
Dayton AP	3	25	45	W	2320E	25	56	W	2320E	25	60	WNW	2100-2359E	25	.71	11.2	.60	24-25	10.0	24-25	11.0	27
Toledo AP	3	24	39	NW	1757E	25	41	NW	1758E	25	56	NNE	1915E	25	.69	6.6	.67	25-26	6.0	25-26	6.0	26
Youngstown AP	6	25-26	--	---	-----	--	29	NNW	0626E	25	39 39	NW ESE	0626E 0226E	25 26	2.23	28.7	1.56	24-25	20.7	24-25	26.0	26
PENNSYLVANIA																						
Allentown AP	20	26	--	---	-----	--	55	ESE	1428E	25	88	ESE	1428E	25	2.71	.1	2.70	25	.1	26	T	26-27
Curwensville AP	2	26	--	---	-----	--	27	ESE	1215E	26	---	---	-----	--	4.94	14.4	4.02	24-25	7.6	25-26	13.0	27
Erie WBO	10	26	25	SE	0015E	26	26	SE	0015E	26	---	---	-----	--	3.25	28.4	2.10	24-25	21.0	24-25	24.0	25
Erie, Port Erie INSAC	9	25	--	---	-----	--	--	---	-----	--	45	SSE	1910E 1928E	25	3.64	33.5	2.12	24-25	21.2	24-25	27.0	26
Harrisburg, AP	14	26	45	SE	0432E	25	58	SE	0432E	25	---	---	-----	--	2.23	2.5	2.21	25	2.3	25	2.0	25
Park Place	10	26	--	---	-----	--	--	---	-----	--	---	---	-----	--	-----	2.0	4.13	25	1.7	26	2.0	27
Philadelphia CO	21	26	45	SE	1047E	25	57	SE	1211E	25	---	---	-----	--	2.80	.4	2.76	25	.4	27	.4	27
Philadelphia Int. AP	21	26	--	---	-----	--	--	---	-----	--	65	ESE	0652E	25	3.51	.2	3.46	25	.2	27	.2	27
Pittsburgh AP	7	25	27	S	1304	26	30	S	1307	26	40	SSE	1205E	26	3.13	29.1	2.08	24-25	17.5	24-25	23.0	27
Pittsburgh WBO	9	25	--	---	---	--	--	---	-----	--	---	---	-----	--	2.92	26.1	1.94	24-25	20.1	24-25	19.0	25
Reading CO	20	26	59	E	0853E	25	69	E	0351E	25	85	ESE	0835E	25	6.09	.3	6.08	25	.3	25-26	.3	26
Scranton CO	20	26	39	E	1140	25	44	E	1140	--	---	---	-----	--	3.47	.1	3.46	25	.1	26	T	25-27
Williamsport AP	14	26	--	---	-----	--	--	---	-----	--	77	E	0923E	25	2.74	4.9	2.44	25	3.4	25-26	4.0	26
RHODE ISLAND																						
Block Island AP	39	24-27	65	ESE	1920E	--	70	ESE	1920E	25	78	ESE	1920E	25	1.75	.0	1.75	25	.0	--	.0	--
Providence CO	35	24	--	---	-	--	--	---	-----	--	---	---	-----	--	2.47	----	2.42	25-26	.0	--	.0	--
Providence AP	35	24	43	E	1752E	25	50	SE	1909E	25	82	E	1915E	25	2.09	.0	1.41	25	.0	--	.0	--
VIRGINIA																						
Cape Henry CO	20	26	37	SE	0355	25	40	SE	0355	25	---	---	-----	--	1.00	T	1.00	24-25	T	25	.0	--
Lynchburg AP	11	26	26	SW	2226E	25	32	SW	2229E	25	32	SW	2229E	25	.80	T	.80	24-25	T	25	T	25
Norfolk AP	20	26	--	---	-----	--	--	--	-----	--	48	SE	0328E	25	.79	T	.79	24-25	T	25	T	25
Richmond CO	16	25-26	-	---	-----	--	-	---	- ---	--	---	---	-----	--	.62	.2	.62	24-25	.2	25	.2	25
Richmond AP	17	26	--	---	-----	--	31	SW	- ---	25	41	SW	1752E	25	.20	T	.[illegible]	24	T	--	----	--
Roanoke AP	9	25	--	---	-----	--	--	---	-----	--	---	---	-- --	--	.62	8.2	.[illegible]	24-25	8.2	24-25	8.0	25
Urbanna AP	18	26	-	---	-----	--	--	--	---	--	---	---	-----	--	.90	T	.90	25	T	25	.0	--
VERMONT																						
Burlington AP	26	27	63	SE	0035E	26	72	SE	0036E	26	75	SE	0036E	26	1.50	T	1.45	25-26	T	27	T	27
WEST VIRGINIA																						
Charleston AP	6	25	--	---	-----	-	35	SSW	0800E	26	55	SSW	0530E	26	1.49	23.6	1.13	24-25	15.1	24-25	19.0	26
Elkins AP	4	25	20	SW	1957E	25	20	SW	1957E	25	25	WNW	1208E	25	1.49	29.5	1.23	24-25	18.5	24-25	18.3	27
Huntington CO	8	25	-	---	-----	--	--	---	-----	--	---	---	-----	--	1.62	19.6	.70	26	8.6	26	13.0	27
Parkersburg CO	9	25	26	S	0420	26	29	S	0420	26	---	---	-----	--	2.04	23.3	1.12	25-26	16.8	25-26	28.3	27
Parkersburg Wood Co. AP	8	25	--	---	--- -	--	--	---	-----	--	60	SW	2105	25	2.72	31.7	1.28	25-26	15.0	25-26	32.0	27
Petersburg AP	10	26	--	---	--- -	--	-	---	-----	--	60 ---	SW ---	2201 -----	25 --	1.45	7.0	1.44	26 24-25	7.0	24-25	7.0	25
WISCONSIN																						
Green Bay AP	-7	25	--	-	-----	--	40	N	0608C	26	44	NNW	2130C	25	.28	3.8	.27	26	3.6	26	4.0	26, 27
Milwaukee AP	-5	24	30	N	2246C	25	34	N	2102C	25	---	---	-----	--	.24	2.8	.23	26	2.6	26	3.0	26, 27

GENERAL SUMMARY OF WEATHER CONDITIONS—Continued

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CONNECTICUT																									
Bridgeport	25	26		25		33		29		27		37		46		45		48		46		48		50	
Hartford	25	25	E	28	ENE	25	ENE	18	E	20	E	40	E	35	E	40	E	35	ESE	33	E	45	ESE	50	ESE
New Haven*	25	21	E	25	E	26	SE	26	SE	30	SE	32	SE	34	SE	34	SE	36	SE	39	SE	40	SE	38	SE
DELAWARE																									
Wilmington	25	18	ESE	25	ESE	22	ESE	27	SE	30	ESE	18	ESE	28	SE	30	ESE	45	ESE	20	SSE	25	SE	16	ESE
DIST. OF COLUMBIA																									
Washington	24	9	N	10	NE	8	NE	10	NE	10	NE	12	NE	10	NE	10	NNE	6	NE	8	NE	8	ESE	20	SE
"	25	25	ESE	38	ESE	42	ESE	33	SSE	30	ESE	33	ESE	20	SE	15	SE	16	SW	12	NNW	12	WNW	15	W
INDIANA																									
Indianapolis	25	10	N	10	N	10	NW	9	N	9	NW	13	NW	13	NW	15	NW	20	NW	24	NW	24	W	26	WNW
"	26	40	WNW	36	WNW	36	WNW	35	WNW	37	NW	38	NW	35	NW	34	NW	30	NW	32	NW	30	NW	31	NW
South Bend	25	5	SSW	6	SSW	4	SW	4	WSW	15	WSW	8	W	9	W	7	ENE	7	WNW	15	NNW	5	NW	5	WSW
"	26	28	NNW	31	NNW	29	NNW	27	NNW	30	NNW	30	NNW	30	NNW	28	N	16	NNE	15	NE	17	NE	14	N
KENTUCKY																									
Cincinnati AP	25	15	NNW	18	NNW	10	NW	10	NW	12	NW	12	WNW	15	WNW	17	NW	20	WNW	18	NW	17	WNW	18	WNW
"	26	35	W	35	WSW	35	W	33	WSW	30	W	35	W	35	W	35	WSW	30	WSW	25	WSW	28	W	20	WSW
MAINE																									
Augusta	26	35	ESE	40	ESE	42	ESE	40	ESE	44	ESE	40	ESE	35	ESE	55	ESE	45	ESE	35	SSE	20	SSE	20	SSE
Portland	25	13	NE	15	NE	13	NE	12	NE	17	E	22	E	16	E	20	E	23	E	22	E	19	E	20	E
"	26	35	E	43	E	45	E	46	E	45	E	42	E	50	E	48	E	15	WSW	10	WSW	2	SW	4	ESE
MARYLAND																									
Baltimore	25	27	E	32	E	29	E	34	E	40	E	30	E	27	E	22	SE	20	SE	18	SE	22	SE	26	SSE
Baltimore CO*	25	29	E	32	E	30	E	38	E	38	E	34	E	30	E	27	E	19	SE	18	SE	21	SE	22	S
MASSACHUSETTS																									
Boston	25	33	ESE	31	ESE	36	E	38	E	40	E	45	E	41	E	43	E	40	E	36	E	37	E	39	E
"	26	60	ESE	12	SSW	16	SW	13	WSW	9	WSW	12	WSW	12	WSW	9	SW	1	DI	7	SW	8	SSE	13	SW
Pittsfield	25													22	ESE	30	ENE	28	ENE	38	ENE	40	ENE	45	E
MICHIGAN																									
Escanaba CO*	25	7	W	9	NW	8	NW	10	NW	11	NW	9	NW	11	NW	10	NW	11	NW	11	NW	11	NW	15	NW
"	26	38	N	38	N	35	N	32	N	29	N	34	N	33	N	28	N	24	N	25	N	22	N	26	N
Jackson	25	12	NW	10	NNW	14	WNW	15	NNW	16	NNW	17	NNW	16	NNW	22	NNW	25	NNW	30	NNW	28	NNW	28	NNW
"	26	42	N	41	N	37	NNE	32	NNE	20	ENE	15	ENE	16	ENE	16	ENE	16	NE	24	NE	24	NNE	20	NNE
Traverse City	25	8	SW	7	SW	10	SSW	9	SW	10	SW	10	SSW	6	S	4	SW	23	NNW	33	NNW	36	NNW	30	NNW
"	26	4	N	38	N	40	N	38	N	40	N	35	NNE	35	NNE	25	NNE	20	NNE	13	NNE	18	NNE	12	NNE
NEW HAMPSHIRE																									
Mt. Washington *	25	52		59		54		70		67		75		63		65		70		65		75		89	
"	26	99		101		93		120		114		103		91		78		76		59		61		57	
NEW JERSEY																									
Atlantic City CO*	24	12	N	9	NW	11	NW	13	N	20	NE	21	E	21	E	21	E	19	E	21	E	18	E	19	E
"	25	38	E	42	E	42	E	45	E	47	E	51	E	54	E	56	E	64	E	61	E	64	E	61	E
Long Branch *	25	24	SE	27	SE	28	SE	33	SE	38	SE	40	SE	44	SE	44	SE	42	SE	42	SE	45	SE	46	SE
Newark	25	24	E	25	ENE	28	E	35	E	29	E	40	E	45	E	49	E	56	E	48	ESE	50	E	35	E
Trenton CO*	25	24	E	25	E	26	E	28	E	29	E	31	E	33	E	35	E	36	E	38	SE	40	E	35	E
Coast Guard Vessel (off central coast)	25	32	E	36	E	40	E	40	E	49	SE	49	SE	49	SE	60	SE	60	SE	60	SE	11	SE	16	SE

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CONNECTICUT																									
Bridgeport	25	51		58		60		55		55		62		51		44		evacuated - tides							
Hartford	25	45	E	40	ESE	45	ESE	35	ESE	45	ESE	48	ESE	55	ESE	60	ESE	50	ESE	60	SSE	24	S	15	SSW
New Haven*	25	45	SE	45	SE	42	SE	44	SE	48	SE	45	SE	45	SE	47	SE	50	SW	25	SW	19	SW	17	SW
DELAWARE																									
Wilmington	25	10	ESE	18	SSW	16	SSW	18	SSW	15	SSW	3	S	23	SSW	26	SSW	25	SSW	26	SSW	17	SW	14	SSW
DIST. OF COLUMBIA																									
Washington	24	30	SE	30	SE	30	SE	20	SE	18	ESE	14	E	27	E	25	E	25	E	30	E	28	ESE	28	E
"	25	10	WNW	12	NW	14	NW	15	WNW	15	WNW	13	WNW	13	WNW	8	WNW	12	SW	13	SW	18	SW	25	SSW
INDIANA																									
Indianapolis	25	28	WNW	30	W	35	W	30	W	30	W	30	WNW	28	W	30	WNW	26	W	25	WNW	39	WNW	35	WNW
"	26	25	NW	26	NW	8	N	7	NW	20	W	20	W	20	W	18	W	18	W	16	W	20	W	17	W
South Bend	25	11	NNE	26	NNW	35	NNW	30	NW	35	NW	32	NW	32	NW	35	NNW	35	NNW	42	NNW	32	NNW	27	NNW
"	26	16	NNW	10	NNW	8	NW	8	NE	6	SE	1	DI	1	DI	17	NW	18	WNW	24	NW	22	NW	23	NW
KENTUCKY																									
Cincinnati AP	25	25	WNW	18	W	25	W	32	W	33	WNW	35	W	35	W	25	W	30	WSW	40	W	30	W	35	W
"	26	20	W	22	W	9	W	6	N	9	NW	6	NW	6	W	9	SW	13	SW	22	SW	26	SW	20	WSW
MAINE																									
Augusta	26	18	SSE	10	S	12	SW	5	SSW	5	WSW	2	NNE	5	NE	3	N	3	NNE	8	ESE	10	SSE	12	SSE
Portland	25	22	E	21	E	26	E	23	E	28	E	33	E	30	E	32	E	40	E	32	E	35	E	42	E
"	26	5	ESE	4	SSW	5	SW	1	DI	7	ENE	6	NE	8	ENE	7	NNE	6	NE	4	ENE	8	W	5	NNW
MARYLAND																									
Baltimore	25	20	SW	14	W	16	W	15	W	4	SE	17	SW	20	WSW	14	WSW	14	WSW	10	W	3	WSW	3	SSW
Baltimore CO*	25	19	SW	11	SW	14	W	5	W	10	SE	21	SW	20	W	15	SW	14	SW	13	W	6	W	7	SW
MASSACHUSETTS																									
Boston	25	44	E	41	E	39	E	40	E	45	E	46	E	43	E	55	E	46	E	57	ESE	49	ESE	54	ESE
"	26	12	SW	10	S	13	SSE	11	SSE	10	ESE	10	ESE	12	ESE	9	E	1	DI	1	DI	6	ESE	8	SE
Pittsfield	25	28	E	39	ESE	37	ESE	39	E	45	E	41	ESE	38	E	40	E								
MICHIGAN																									
Escanaba CO*	25	17	NW	23	N	24	N	25	N	26	N	29	N	26	N	30	N	33	N	37	N	36	N	36	N
"	26	26	N	23	N	24	N	23	N	24	N	23	N	23	N	22	N	23	N	22	N	23	N	21	NW
Jackson	25	32	NNW	33	NNW	30	NNW	30	NNW	30	NNW	30	NNW	42	NNW	45	NNW	47	NNW	47	NNW	48	NNW	47	NNW
"	26	16	NNE	15	N	18	N	13	NNW	10	NNW	10	WNW	8	WNW	3	W	4	W	5	WSW	4	SW	7	SSW
Traverse City	25	26	N	28	N	30	NNW	35	NNW	32	N	35	N	36	N	34	N	38	N	45	N	32	N	40	N
"	26	18	SE	12	SSE	10	S	10	S	12	SSE	10	SSE	8	S	6	SSE	8	SE	10	SE	8	S	6	ESE
NEW HAMPSHIRE																									
Mt. Washington *	25	89		85		85		85		88		93		109		109		105		111		112		110	
"	26	54		54		54		57		59		59		54		52		50		44		44		44	
NEW JERSEY																									
Atlantic City CO*	24	19	E	17	E	19	E	22	E	17	SE	15	SE	19	E	28	E	30	E	29	E	31	E	34	E
"	25	42	SE	43	SE	25	SW	24	SW	25	S	26	S	31	S	29	S	30	S	27	S	25	S	25	S
Long Branch *	25	48	SE	52	SE	52	SE	56	SE	37	SE	16	SW	16	SW	15	SW	14	SW	14	SW	13	SW	14	SW
Newark	25	60	E	56	E	58	ESE	60	ESE	60	ESE	37	SSE	19	SSW	26	SSW	32	SSW	28	SSW	25	SSW	21	SSW
Trenton CO*	25	40	SE	42	SE	41	SE	24	S	15	S	18	S	23	S	25	S	27	S	23	S	25	S	20	S
Coast Guard Vessel (off central coast)	25	24	SE	26	SE	36	SE	50	S	50	S	50	SW	50	SW	50	SW	50	WSW	46	WSW	48	WSW	42	WSW

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NEW YORK																									
Albany	25	10	E	12	E	8	ENE	8	E	12	ENE	17	ESE	20	ESE	20	E	24	E	30	E	20	E	24	E
Bear Mountain	25													34		49		62		71		84		67	
Binghamton	25	17	ENE	18	ENE	19	ENE	22	ENE	22	ENE	24	E	20	ENE	30	ENE	32	E	35	E	36	E	40	ENE
Buffalo	25	10	N	9	N	12	N	16	NE	19	NE	24	NE	26	NE	31	NE	30	NE	25	NE	28	NE	25	NE
Glen Falls	25	16	ENE	18	ENE	22	ENE	15	ENE	16	ENE	26	ENE	18	ENE	23	ENE	45	E	32	E	38	ESE	26	ESE
International AP	25	25	E	31	E	31	E	29	E	39	E	43	E	43	E	54	E	56	E	60	ESE	63	ESE	65	E
La Guardia Field	25	26	ENE	26	ENE	30	E	35	E	40	E	39	E	42	E	52	E	50	ENE	46	ENE	49	E	52	E
Messena	25	24	ENE	26	ENE	28	ENE	32	ENE	33	ENE	28	ENE	26	ENE	22	ENE	26	ENE	30	ENE	38	ENE	35	ENE
"	26	45	ENE	43	ENE	38	ENE	34	ENE	36	ENE	28	ENE	26	E	13	SSE	12	ESE	14	SE	16	SSE	26	S
New York CO	25	17	E	20	E	24	NE	25	E	26	E	27	NE	30	E	31	NE	33	NE	33	E	33	E	30	NE
"	26	20	SW	19	SW	21	S	25	S	26	S	21	S	20	S	22	SW	20	S	15	S	10	S	10	S
Rochester	25	1	DI	3	SSE	5	E	17	E	21	E	26	ENE	26	E	25	ENE	16	NE	28	NE	26	ENE	24	E
Syracuse	25	22	E	16	E	21	E	23	E	22	E	25	E	25	E	24	E	30	E	30	ESE	35	E	38	ESE
Utica	25	35	ESE	34	ESE	33	ESE	35	ESE	38	ESE	37	ESE	45	ESE	47	ESE	45	ESE	45	ESE	55	ESE	56	ESE
Watertown	25	15	NE	15	NNE	18	NNE	20	NNE	18	NNE	19	NNE	19	NE	21	NE	21	NE	23	NE	29	E	28	ENE
Upton L.I.(410 ft.)*	25	31	E	32	E	34	E	36	E	42	E	45	E	47	E	46	E	48	E	45	E	45	E	45	E
Upton L.I.(37 ft.)*	25	18	E	19	E	18	E	18	E	22	E	25	E	25	E	25	E	28	E	27	E	28	E	27	E
OHIO																									
Cleveland	25	18	N	23	N	26	NNW	29	NNW	37	NNW	34	NNW	31	NW	35	NW	27	WNW	30	WNW	23	WNW	19	WNW
Columbus CO*	25	16	N	17	N	16	N	16	NW	15	NW	15	NW	17	NW	18	NW	17	NW	18	W	23	W	20	W
Toledo	25	15	NW	15	NNW	15	NNW	18	NNW	16	NNW	20	NW	25	NW	25	NW	24	NW	33	NW	28	NW	30	NW
PENNSYLVANIA																									
Allentown	25	27	E	30	ESE	38	ESE	37	ESE	50	E	40	ESE	38	E	42	E	45	E	47	E	45	E	54	E
Harrisburg	24	9	E	12	E	7	E	12	E	14	ESE	11	E	10	E	10	E	10	ESE	11	ESE	14	ESE	13	ESE
"	25	27	E	35	ESE	34	ESE	35	ESE	38	ESE	38	ESE	38	E	42	E	33	E	19	ESE	16	ESE	30	E
Philadelphia	25	30	ESE	22	ESE	29	ESE	40	ESE	30	SE	36	ESE	40	ESE	45	ESE	36	SE	40	SE	50	SE	40	ESE
Philadelphia CO*	25	22	E	25	E	26	E	26	E	26	E	27	E	33	E	34	E	34	SE	36	SE	37	SE	34	SE
Port Erie	25	19	N	22	N	23	N	19	N	20	N	20	N	15	N	4	NE	4	NE	4	NE	10	ENE	13	NE
"	26	24	SE	15	SE	10	SE	15	ESE	10	E	10	ESE	14	ESE	13	ESE	14	ESE	18	SE	21	SE	19	SE
Reading CO*	24	14		18		14		25		26		26		27		23		19		17		19		24	
"	25	32		31		38		41		42		46		44		43		46		49		33		24	
Williamsport	24	5	ENE	5	ENE	10	ENE	15	ESE	15	ESE	15	ESE	15	SSE	20	SSE	23	SE	23	SE	24	SE	25	ESE
"	25	25	ESE	30	ESE	30	ESE	31	ESE	31	ESE	41	ESE	45	ESE	35	ESE	36	E	47	E	45	E	43	ESE
RHODE ISLAND																									
Providence	25	12	NE	15	ENE	18	ENE	16	ENE	19	ENE	17	ENE	22	ENE	23	ENE	23	ENE	25	ENE	26	ENE	28	ENE
Block Island	25	30	E	30	E	30	E	32	E	32	E	32	E	36	E	40	E	36	E	35	E	37	E	39	E
VERMONT																									
Burlington	25	12	SE	10	ESE	15	E	18	SE	15	SE	10	ENE	25	ESE	8	SE	15	ESE	10	SE	22	SE	21	SE
"	26	60	SE	40	SE	30	SE	30	SE	25	SE	20	SE	20	E	20	S	8	S	14	S	16	S	18	S
VIRGINIA																									
Norfolk	24	6	SE	4	SE	7	SE	8	SE	8	ESE	10	ESE	13	ESE	7	ESE	5	SE	6	ESE	17	SE	16	SE
"	25	18	SSE	19	SSE	25	ESE	37	SE	25	ESE	20	SW	10	SW	6	SSE	11	SSE	18	S	26	S	15	S
Roanoke	25	12	WNW	12	NW	20	WNW	26	W	24	WNW	26	WNW	26	W	30	WNW	28	NW	25	NW	30	NW	22	NW
WEST VIRGINIA																									
Charleston	25	8	WNW	7	WNW	10	NNW	12	WSW	12	WSW	12	WSW	14	WSW	16	WSW	14	W	14	WSW	10	WSW	15	WSW
"	26	20	SSW	15	SSW	12	SSW	14	SSW	15	SSW	18	SSW	15	S	15	SSW	33	SW	15	SSW	23	S	27	SSW
Parkersburg	25	9	NW	12	NW	15	NW	12	NW	8	WNW	17	WNW	18	WNW	17	WNW	17	W	20	WSW	18	WSW	23	WSW
"	26	40	SW	30	SSW	30	SSW	40	SSW	30	SSW	35	SSW	30	SSW	22	SSW	20	SSW	25	SSW	30	SSW	30	SSW

State and Station	Date	P.M. 12:20 Spd	Dir	1:20 Spd	Dir	2:20 Spd	Dir	3:20 Spd	Dir	4:20 Spd	Dir	5:20 Spd	Dir	6:20 Spd	Dir	7:20 Spd	Dir	8:20 Spd	Dir	9:20 Spd	Dir	10:20 Spd	Dir	11:20 Spd	Dir
NEW YORK																									
Albany	25	20	E	22	ENE	19	E	19	ENE	16	NE	22	ESE	40	ENE	55	E	52	ENE	50	ENE	20	SSE	18	S
Bear Mountain	25	71		89		92		90		95		100													
Binghamton	25	38	ENE	40	ENE	36	ENE	32	ENE	46	NE	34	ENE	18	ENE	13	S	22	S	8	S	18	S	15	S
Buffalo	25	20	ENE	30	E	27	ENE	28	NE	42	ENE	44	ENE	38	ENE	26	ENE	14	S	18	SSE	14	SE	42	SSE
Glen Falls	25	26	ENE	35	ESE	20	ENE	34	ENE	38	ENE	25	ENE	47	ENE	44	ENE	61	ENE	62	ENE	41	ENE	45	ENE
International AP	25	60	E	58	E	59	E	62	E	63	E	60	E	23	SSW	35	S	34	SSW	32	S	35	S	20	SSW
La Guardia Field	25	52	E	50	SE	56	E	58	ESE	62	E	52	ESE	17	SSW	24	SSW	24	SSW	26	SSW	24	SSW	16	SSW
Messena	25	46	ENE	48	ENE	50	ENE	45	ENE	26	ENE	52	ENE	44	ENE	50	ENE	64	ENE	56	ENE	55	ENE	50	ENE
"	26	10	SSE	28	SSE	10	SSE	12	SE	13	SSE	8	SSE	6	ESE	7	E	5	E	8	ENE	14	E	15	E
New York CO	25	37	NE	39	E	40	NE	42	E	40	E	36	SE	25	S	36	S	40	S	39	S	32	S	26	S
"	26	12	SE	13	SE	12	E	11	E	10	E	22	S	19	S	15	S	17	SW	14	SW	16	SW	14	W
Rochester	25	24	E	26	E	29	E	33	E	42	E	35	E	32	E	34	E	12	S	12	SW	12	SE		
Syracuse	25	24	E	26	E	29	E	33	E	39	E	38	E	40	E	48	E	55	E	52	E	56	E	30	S
Utica	25	50	ESE	62	ESE	64	ESE	65	ESE	60	ESE	60	ESE	65	ESE										
Watertown	25	29	ENE	26	NE	19	NE	24	NE	25	NNE	30	NNE	18	NNE	38	ENE	65	ENE	55	ENE	40	E	30	E
Upton L.I.(410 ft.)*	25	51	E	52	E	56	E	61	E	61	E	58	E	59	ESE	--	S	26	S	32	S	27	S	24	S
Upton L.I.(37 ft.)*	25	34	E	34	E	29	E	34	E	31	E	29	E	32	ESE	18	SSE	12	SSE	17	SSE	15	S	13	S
OHIO																									
Cleveland	25	18	NW	18	NW	10	SSE	13	SSE	13	SE	13	N	18	E	25	ENE	20	ESE	20	SE	15	SE	17	E
Columbus CO*	25	17	W	23	W	22	W	24	W	26	W	25	W	26	SW	20	SW	22	SW	19	SW	21	SW	20	SW
Toledo	25	28	NW	32	NW	31	NW	30	NW	27	NW	32	NW	32	NNW	35	NNW	23	NNW	32	NNW	29	NNW	26	NE
PENNSYLVANIA																									
Allentown	25	50	E	45	ESE	55	ESE	25	SE	15	SSE	18	S	30	SSW	25	SSE	30	SSW	25	S	25	SSW	18	SSW
Harrisburg	24	16	ESE	15	ESE	15	E	9	E	16	ESE	14	ESE	13	ESE	18	ESE	25	ESE	42	ESE	26	ESE	31	ESE
"	25	11	ESE	18	WSW	8	W	12	WNW	10	WNW	7	WSW	23	W	18	WSW	9	W	3	WSW	9	S	10	WSW
Philadelphia	25	43	SE	23	SE	20	SW	15	SW	23	SSW	20	SSW	32	SSW	30	SSW	30	SSW	33	SSW	25	SSW	20	SSW
Philadelphia CO*	25	31	SE	19	SE	14	SW	13	SW	13	SW	14	SW	15	S	17	SW	17	S	17	SW	16	SW	13	S
Port Erie	25	12	ENE	10	S	6	SSE	25	S	25	S	25	SSE	30	SSE	28	SSE	15	SSE	25	SSE	25	SSE	30	SSE
"	26	18	SE	17	SE	15	SE	13	SSE	10	S	14	S	18	S	19	S	15	S	15	S	15	S	13	S
Reading CO*	24	23		25		21		23		17		24		26		26		29		34		36		36	
"	25	32		43		19		18		14		18		17		28		28		26		23		19	
Williamsport	24	23	ESE	22	SE	22	SE	19	SE	23	SE	21	E	23	ESE	30	ESE	20	ESE	28	ESE	30	ESE	32	ESE
"	25	28	ESE	26	E	40	E	20	S	20	WNW	22	WNW	23	WNW	14	W	20	W	10	W	6	S	15	SSE
RHODE ISLAND																									
Providence	25	30	ENE	28	ENE	30	ENE	30	ENE	30	ENE	40	E	40	E	34	E	42	E	40	E	40	ESE	12	S
Block Island	25	39	E	50	E	42	E	50	E	55	E	63	ESE	62	ESE	61	ESE	63	SE	55	SSW	16	SW	18	SW
VERMONT																									
Burlington	25	32	SE	30	SE	29	SE	28	SE	40	ESE	26	ESE	29	ESE	24	SE	10	ESE	20	ESE	20	ENE	27	ESE
"	26	16	SSW	15	S	15	SSW	12	SSW	17	S	8	SSE	13	SSE	5	S	7	SE	12	SSE	12	SSE	8	SE
VIRGINIA																									
Norfolk	24	16	SSE	16	SE	19	SE	15	ESE	13	ESE	13	ESE	12	ESE	19	ESE	28	E	32	ESE	25	ESE	5	E
"	25	18	WSW	22	SSW	23	SW	29	SW	30	SSW	24	SW	19	SSW	20	SW	22	SW	13	SW	14	SW	15	SW
Roanoke	25	46	NW	32	WSW	31	W	28	W	20	WSW	22	WSW	20	WSW	20	SW	16	SW	24	WSW	20	SW	20	SW
WEST VIRGINIA																									
Charleston	25	25	SW	22	WSW	20	SW	28	SW	20	SW	27	SW	27	SW	20	SW	25	SW	30	SSW	30	SSW	20	SSW
"	26	16	SSW	22	SSW	19	SW	16	SW	16	SSW	14	SSW	16	SW	17	SSW	16	SSW	16	SW	16	SW	15	SW
Parkersburg	25	23	WSW	24	WSW	26	WSW	27	SW	25	SW	35	SW	35	SW	30	SW	40	SW	45	SW	45	SW	32	SW
"	26	24	SSW	18	WNW	16	WSW	15	WSW	15	SW	7	SW	10	SW	8	SW	9	WSW	12	WSW	12	WSW	8	S

Data are the measured 1-minute wind speeds and directions for the indicated time at the airport stations unless otherwise specified.
* Indicates that data are recorded speed and direction for each hour; i.e. entries under heading 12:20 a.m. are for hour 12 midnight to 1 a.m., under 1:20 a.m. for hour 1 a.m. to 2 a.m., etc.
CO, city office data. DI, direction indeterminate (calm). †, estimated from dial readings.

CONDENSED CLIMATOLOGICAL SUMMARY

Table 1 — NOVEMBER 1950

Section	Temperature							Precipitation					
	Average	Departure from normal	Monthly extremes					Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date						
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	49.4	-4.8	Selma	89	1	Valley Head	-2	25	1.67	-1.50	Youngs Store	6.20	Alberta	0.44
Arizona	54.0	+4.0	2 Stations	94	†5	Sanders	-3	10	.14	-.80	Tonto Cr.Fish Hatch.	1.18	58 Stations	.00
Arkansas	47.4	-3.8	Norfolk Dam	89	1	Mount Magazine	0	24	2.24	-1.56	Burdette	6.67	Gravette	.22
California	55.8	+3.8	Laguna Beach	100	3	Boca	8	10	4.59	+2.55	Blue Canyon WB AP	26.75	13 Stations	.00
Colorado	36.2	+2.0	Edgewater	87	1	Tabernash	-34	10	.79	.00	Allens Park	4.20	2 Stations	.00
Florida	62.2	-2.8	3 Stations	90	†1	Secotan	16	25	.90	-1.29	Ft. Lauderdale	5.37	Captiva	.00
Georgia	51.1	-4.2	Camp Stewart	94	1	2 Stations	0	25	1.00	-1.66	Adel	2.73	Albany	.32
Idaho	37.1	+1.8	Lewiston Water Plant	75	4	Island Park Dam	-7	10	1.95	.00	Roland W. Portal	6.02	Hamer 4NW	.03
Illinois	36.5	-5.7	2 Stations	86	1	Freeport	-12	24	2.82	+.20	Lawrenceville	8.94	Avon	.58
Indiana	37.0	-5.2	Madison	88	1	3 Stations	-10	25	5.19	+2.17	Kokoma P.O.	8.33	Fowler Power Sub.Sta.	2.08
Iowa	33.1	-4.3	Keokuk L.& D.	84	1	Cresco	-11	24	.60	-1.12	Alton	2.32	Jefferson	.15
Kansas	40.9	-2.9	Lakin	92	1	Oberlin	-9	24	.20	-1.19	Soldier	1.05	6 Stations	.00
Kentucky	41.0	-5.4	3 Stations	86	1	2 Stations	-8	25	5.20	+1.73	Willow Lock 13	8.46	Central City	3.18
Louisiana	55.9	-2.4	2 Stations	90	1	do	17	†12	2.06	-2.06	Hornbeck	6.26	New Orleans	.25
Maryland-Delaware	45.9	+.5	6 Stations	88	1	Oakland	1	26	3.38	+.70	Edgemont	6.16	Solomons	1.61
Michigan	32.8	-3.2	Wayne	84	1	Pellston CAA	-23	†24	3.04	+.52	Port Huron Fire Dept.	8.53	Beaverton	.99
Minnesota	24.9	-4.5	Winona	84	1	Baudette	-22	23	1.09	-.09	Cokato	2.91	Wheaton	.13
Mississippi	51.4	-3.7	Purvis	91	1	Corinth	4	25	2.83	-1.01	Acton	6.42	Bay St. Louis	.34
Missouri	39.9	-4.7	Camdenton	90	1	Marble Hill	-12	25	1.69	-1.04	Cape Girardeau	5.18	Seligman	.00
Montana	28.0	-3.9	2 Stations	75	4	2 Stations	-29	†19	.95	+.11	Glacier Park	6.89	2 Stations	.02
Nebraska	35.8	-1.5	Fairbury	86	1	Chadron AP	-16	24	.48	-.31	Crete	1.02	5 Stations	T
Nevada	44.8	+4.2	2 Stations	87	†3	Wilkins	-11	9	1.33	+.66	Carson City	6.22	2 Stations	.00
New England	42.2	+4.0	4 Stations	84	2	Fabyan, N.H.	1	23	6.53	+2.89	Pinkham Notch, N.H.	12.92	Essex Junction, Vt.	2.85
New Jersey	46.3	+2.3	Elizabeth	88	1	2 Stations	13	†14	5.49	+2.14	Oak Ridge Res.	8.71	Manville	3.38
New Mexico	45.7	+2.8	Portales	90	6	Eagle Nest	-20	10	.06	-.55	Chacon	1.53	130 Stations	.00
New York	40.4	+2.1	Elmira	87	2	Saranac Lake	0	23	4.91	+1.81	Slide Mountain	13.57	Schenectady City	1.70
North Carolina	47.7	-2.4	2 Stations	90	2	Mt. Mitchell	-19	25	1.52	-1.26	Roaring Gap 1NE	3.80	Willard 1N	.20
North Dakota	21.6	-5.8	3 Stations	70	†5	2 Stations	-23	24	.49	-.12	Underwood 12W	1.41	Crosby	T
Ohio	37.3	-4.3	New Lexington	88	1	Peebles	-6	25	4.94	+2.22	Chardon	8.33	Put-in-Bay Stone Lab.	2.66
Oklahoma	47.5	-2.4	Alva	92	1	Kenton	1	10	.37	-1.66	McCurtain	2.56	23 Stations	.00
Oregon	42.0	+1.8	Brookings	85	3	Squaw Butte Exp.Sta.	6	11	4.88	+1.00	Valsetz	22.78	Baker CAA	.46
Pennsylvania	40.5	-.9	2 Stations	86	†1	Burgettstown 3W	-10	29	6.34	+3.38	Curwensville 6NW	10.83	Gettysburg	2.69
South Carolina	50.5	-3.4	4 Stations	88	†1	Caesar's Head	-1	25	1.16	-1.18	Heath Springs	2.83	Crescent	.23
South Dakota	30.1	-3.0	2 Stations	79	1	Ralph	-18	24	.40	-.26	Spearfish 8W	1.45	3 Stations	T
Tennessee	43.3	-5.2	do	86	1	Allardt	-8	25	4.94	+1.27	Shady Grove	8.35	Elizabethton	1.47
Texas	55.8	-1.3	Uvalde	98	14	Dalhart Exp. Sta.	4	10	.36	-1.76	Bronson	5.27	217 Stations	.00
Utah	40.7	+3.6	Mexican Hat	82	1	2 Stations	-10	10	1.32	+.39	Alta	11.79	2 Stations	.00
Virginia	45.2	-1.5	Buggs Island Dam	90	2	Burkes Garden	-3	25	2.34	-.17	Big Meadows	5.39	Copper Hill	.80
Washington	39.1	-.8	Alder Dam Camp	72	3	Republic	-1	19	5.42	+.74	Petersons Ranch	22.42	Richland 2NW	.54
West Virginia	39.9	-3.4	2 Stations	87	1	Cranberry Glades	-8	25	5.29	+2.47	Webster Springs	12.03	Spruce Knob	1.47
Wisconsin	29.0	-4.0	Winter Pk. Reser.	89	1	Coddington Exp. Sta.	-22	25	1.22	-.67	Buckataphon	4.03	Genoa	.29
Wyoming	31.8	+.4	Sheridan WB AP	75	4	Big Piney	-26	10	.95	+.17	Bechler River	6.08	Newcastle 14W	T
Puerto Rico	75.5	-.6	Colso (3)	94	†4	Guineo Reservoir	55	†17	10.02	+2.49	Rio Blanca (1800 ft.)	22.76	Lares	2.15
Hawaii	72.1	-.2	Puunene AP	93	†1	Haleakala	39	28	9.83	+3.34	Kukui	68.00	U.S. Mag Obs.	.49
Alaska (Oct.)	29.1	+.3	Radioville	66	1	Allakaket	-28	31	1.65	-1.29	Little Port Walter	18.84	Sheep Mountain CAA	.20

† Other dates also.

CLIMATOLOGICAL DATA

Table 2 — NOVEMBER 1950

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb*	*Mb.*	°F	°F.	°F.	°F.	°F.		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			*0–3*	*4–7*	*8–10*	*0–10*	%
ALABAMA																																
Anniston	599	997.6	1020.4	60	32	46.1	----	83	1	5	25	0	18	36	--	1.88	-----	0.93	7	0	T	T	6.6	E	--	---	--	--	--	--	---	--
Birmingham	610	992.9	1020.3	60	34	47.2	-4.2	83	1	5	25	0	13	36	69	1.69	-1.62	.57	9	1	1.4	1	7.6	NNW	31	SW	20	14	5	11	4.8	59
Mobile CO	211	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	40	SW	20	--	--	--	---	66
Mobile	10	1012.5	1020.6	67	41	54.1	----	84	1	22	25	0	8	43	71	.68	-----	.51	4	0	.0	0	10.7	N	--	---	--	18	9	3	3.6	--
Montgomery CO	201	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Montgomery	198	1012.9	1020.3	65	36	50.0	-5.8	85	1	13	25	0	14	38	69	1.04	-2.19	.86	6	2	T	0	6.4	WNW	29	SW	20	14	8	8	4.1	76
ARIZONA																																
Flagstaff	6993	789.7	1022.1	58	23	40.9	----	70	8	7	11	0	26	20	49	.45	-----	.45	1	0	T	0	7.3	NE	--	---	--	16	3	11	4.3	--
Payson CO	4999	850.7	1018.9	70	37	53.5	----	78	6	25	11	0	6	25	38	.46	-----	.46	1	0	.0	0	3.4	NE	--	---	--	15	7	8	4.0	--
Phoenix CO	1083	-----	-----	--	--	65.3	+5.6	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	16	E	11	--	--	--	---	90
Phoenix	1108	976.3	1015.4	82	46	64.2	----	90	22	35	12	3	0	33	39	.04	-.66	.04	1	0	.0	0	3.9	E	--	---	--	19	4	7	3.5	--
Prescott	5014	849.6	1019.2	68	33	50.5	----	79	8	17	11	0	14	19	37	.15	-----	.15	1	0	.0	0	7.6	S	32	SW	14	17	5	8	3.6	89
Tucson	2585	927.2	1015.3	79	47	63.0	+5.3	86	26	37	12	0	0	30	33	T	-.82	T	0	0	.0	0	6.6	SSE	38	E	10	19	6	5	3.2	96
Winslow	4880	854.7	1019.3	64	30	46.9	+5.3	78	8	12	10	0	19	18	37	.04	-.57	.04	1	0	.0	0	7.4	SE	*36	WSW	18	15	7	8	4.1	--
Yuma	203	1010.2	1015.2	86	53	69.5	----	94	7	38	12	11	0	31	29	T	-----	T	0	0	.0	0	7.8	NNE	31	NW	10	25	2	3	2.2	94
ARKANSAS																																
Fort Smith	458	1003.1	1020.0	61	34	47.2	-3.8	82	1	52	11	0	18	31	62	.79	-2.08	.44	5	3	.0	0	8.8	NE	31	W	19	--	--	--	4.7	59
Little Rock	257	1006.8	1020.2	60	37	48.4	-3.7	81	1	17	24	0	12	36	69	3.90	-.29	2.15	11	6	T	T	7.4	NW	32	NW	20	--	--	--	5.0	64
Texarkana	361	1006.4	1020.0	64	40	52.2	-2.8	82	1	21	11	0	10	38	67	.48	-3.82	.25	5	3	T	0	9.4	S	--	---	--	13	5	12	5.1	--
CALIFORNIA																																
Bakersfield	489	1001.0	1018.5	72	50	60.7	+5.3	88	4	39	15	0	0	48	64	.58	+.12	.30	5	0	.0	0	3.5	ENE	--	---	--	15	4	11	4.5	--
Beaumont CO	2589	927.2	1017.6	73	46	59.5	----	85	2	33	11	0	0	30	43	2.19	-----	1.25	4	0	.0	0	9.6	E	*42	E	19	22	3	5	2.7	--
Bishop	4108	877.1	1019.0	68	32	50.1	----	82	5	14	15	0	13	--	--	1.81	-----	1.79	3	0	.0	0	----	---	--	---	--	12	9	9	5.0	--
Blue Canyon	5280	841.2	1017.8	56	42	49.1	----	71	3	27	14	0	5	33	62	26.75	-----	8.66	11	1	15.7	9	12.6	NE	--	---	--	9	2	19	6.7	--
Burbank	699	990.5	1016.7	76	50	62.6	----	93	2	37	12	4	0	45	62	1.06	-----	.53	5	0	.0	0	4.1	SE	*24	NW	21	14	8	8	4.5	--
Eureka CO	43	1016.3	1018.6	60	49	54.6	+3.5	77	9	41	22	0	0	--	--	3.43	-1.75	.96	14	0	.0	0	6.0	---	36	S	16	3	7	20	7.9	27
Fresno	331	1006.8	1018.9	69	47	58.2	+5.8	85	4	37	15	0	0	52	83	1.85	+.92	.87	9	0	.0	0	5.1	SE	27	SE	18	10	6	14	5.8	70
Los Angeles CO	312	-----	-----	--	--	63.7	+2.8	--	--	--	--	--	--	--	--	1.05	-.15	-----	--	--	----	--	----	---	22	E	13	--	--	--	---	73
Los Angeles	99	1013.2	1017.0	70	52	61.3	----	94	3	43	12	3	0	50	75	.94	-----	.79	6	0	.0	0	3.7	W	--	---	--	9	8	13	5.4	--
Mt. Shasta CO	3543	895.7	1019.5	55	35	44.7	+3.3	71	4	23	10	0	13	37	76	4.95	+.96	3.83	12	0	6.0	5	6.9	SE	--	---	--	9	4	17	6.5	--
Oakland	3	1018.3	1018.5	67	51	59.1	+6.7	83	3	43	11	0	0	49	73	4.64	+2.58	2.15	11	0	.0	0	4.8	SE	--	---	--	9	6	15	5.9	--
Red Bluff	341	1005.1	1018.1	66	48	56.6	+2.8	85	3	39	11	0	0	46	73	2.20	-.77	1.07	12	1	.0	0	8.6	NNW	47	SE	16	10	4	16	6.1	60
Sacramento CO	----	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Sacramento	25	1015.6	1018.0	66	49	57.2	+3.6	78	2	40	11	0	0	51	81	4.80	+2.92	2.09	11	0	.0	0	9.5	NNW	49	S	16	9	7	14	5.7	54
Sandberg CO	4517	865.6	1017.9	62	47	54.5	----	76	6	30	10	0	2	28	46	.37	-----	.26	5	0	T	0	17.8	ENE	--	---	--	17	2	11	3.9	--
San Diego	19	1013.5	1016.6	71	54	62.5	+3.2	92	3	43	12	2	0	50	72	1.23	+.47	1.11	4	0	.0	0	5.1	N	23	S	13	13	11	6	4.0	73
San Francisco CO	52	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	----	---	--	--	--	--	---	55
San Francisco	1	1017.3	1018.0	67	52	59.8	+7.5	81	3	45	13	0	0	50	74	2.90	+1.34	1.45	11	0	.0	0	8.4	WNW	43	S	*16	8	6	16	6.1	--
Santa Catalina	1568	960.4	1016.1	71	57	64.4	----	86	2	46	15	0	0	--	--	.80	-----	.37	5	0	.0	0	----	---	--	---	--	18	5	7	3.5	--
Santa Maria	231	1009.5	1018.0	72	48	60.0	----	90	4	35	12	2	0	50	76	1.39	-----	.54	8	0	.0	0	7.4	E	--	---	--	14	5	11	4.8	--
COLORADO																																
Alamosa	7534	772.8	1024.0	53	11	32.0	----	65	8	-8	10	0	30	--	--	T	-----	T	0	0	T	T	----	---	--	---	--	9	12	9	5.3	--
Colorado Springs	6175	811.4	1020.7	53	24	38.3	----	71	27	-7	10	0	21	16	46	.14	-----	.12	4	0	2.1	2	10.4	N	--	---	--	8	9	13	5.7	--
Denver	5221	837.1	1018.9	53	25	39.1	+1.3	74	27	-8	10	0	19	20	53	1.00	+.34	.73	5	0	11.9	9	7.9	S	36	NW	5	7	11	12	6.3	66
Grand Junction	4849	862.5	1021.4	53	30	41.6	+2.3	69	8	6	10	0	21	21	46	.32	-.25	.31	2	1	T	T	7.2	ESE	47	NW	14	10	5	15	6.1	62
Pueblo	4799	857.8	1019.7	55	22	38.7	+.4	78	5	-9	10	0	27	18	48	.08	-.25	.08	1	0	1.5	2	5.9	W	52	NW	22	8	10	12	6.0	63
CONNECTICUT																																
Bridgeport	7	1014.9	1015.4	54	38	46.0	----	77	2	29	23	0	9	38	71	3.34	-----	1.43	9	0	T	0	12.2	WNW	62	E	25	6	9	15	6.6	--
Hartford	15	1009.1	1015.0	55	34	44.6	+5.1	83	2	22	19	0	13	37	78	4.83	+1.28	2.14	10	0	T	0	9.9	S	70	E	25	5	6	19	7.5	44
New Haven	6	1010.8	1014.9	54	36	45.1	+5.2	74	2	22	19	0	10	--	--	3.10	+.05	1.28	11	0	T	T	9.2	---	57	E	25	4	11	15	6.8	55
DELAWARE																																
Wilmington	73	1011.9	1015.7	56	34	45.0	----	85	1	18	26	0	17	36	71	4.22	-----	2.76	9	1	.8	T	9.0	NW	--	---	--	7	11	12	6.1	--
FLORIDA																																
Apalachicola CO	13	1018.3	-----	67	48	57.8	-3.5	82	1	24	25	0	2	--	--	.36	-2.71	.31	3	1	.0	0	----	---	28	NW	4	23	6	1	1.9	89
Daytona Beach	33	1017.6	1019.2	73	49	60.8	-4.9	83	3	27	26	0	3	52	79	.74	-1.73	.45	5	1	.0	0	9.8	NW	*28	WNW	25	16	10	4	3.4	--
Fort Myers	15	1018.3	1018.6	78	55	66.6	-2.9	86	3	34	26	0	0	57	77	.02	-1.31	.02	2	0	.0	0	7.6	NE	--	---	--	16	11	3	3.5	--
Jacksonville CO	----	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Jacksonville	18	1018.3	1019.5	69	46	57.8	-2.7	87	3	23	25	0	5	46	70	.68	-1.30	.30	7	1	.0	0	5.8	NW	60	S	24	18	6	6	3.4	71
Key West CO	5	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	28	NW	25	--	--	--	---	72
Key West	6	1016.3	1017.1	78	68	72.5	-1.1	86	3	55	26	0	0	64	78	.28	-1.91	.15	6	1	.0	0	12.1	NE	--	---	--	20	7	3	2.9	--
Lakeland CO	214	-----	-----	73	54	63.5	-3.6	84	3	30	26	0	1	--	--	.07	-1.77	.03	5	0	.0	0	----	---	--	---	--	16	9	5	4.0	--
Melbourne	22	1017.6	1018.7	74	55	64.6	-2.8	83	3	32	26	0	1	56	77	.93	-1.08	.37	6	2	.0	0	9.1	NW	*24	NNE	7	17	11	2	3.4	--
Miami CO	----	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Miami	8	1016.9	1017.7	78	60	69.0	----	84	3	39	26	0	0	60	75	2.66	-----	1.66	10	1	.0	0	7.6	N	*22	NNE	18	12	16	2	4.0	66
Miami Beach	----	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Orlando	111	1014.9	1019.3	76	51	63.5	-2.9	86	3	29	26	0	2	52	75	.09	-1.58	.09	1	0	.0	0	7.6	NNW	*25	WNW	4	15	10	5	3.9	--
Pensacola CO	13	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	25	NW	26	17	7	6	3.7	81
Pensacola	---	1018.0	1020.0	68	44	55.7	----	85	1	22	25	0	5	44	--	.59	-----	.48	4	1	.0	0	8.3	NNW	--	---	--	--	--	--	---	--
Tallahassee	64	1017.6	1020.1	69	42	55.3	-2.5	86	1	19	26	0	8	42	68	.91	-1.86	.35	5	0	.0	0	5.7	NW	--	---	--	17	6	7	3.5	--
Tampa	24	1017.6	1018.9	75	53	64.1	-2.8	85	2	31	26	0	1	53	73	.23	-1.49	.11	5	0	.0	0	6.6	NNE	30	W	25	15	9	6	3.9	69
West Palm Beach	14	1016.3	1017.3	77	60	68.6	----	85	3	36	26	0	0	58	74	1.81	-1.65	.72	8	1	.0	0	7.3	NNW	--	---	--	12	14	4	4.4	--
GEORGIA																																
Albany	190	1013.2	1020.4	67	39	53.2	-5.2	87	1	16	25	0	9	39	66	.40	-2.07	.32	3	0	T	T	5.1	W	*53	WNW	25	16	8	6	3.5	--
Atlanta CO	----	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Atlanta	977	977.0	1019.5	59	36	47.6	-3.9	81	1	3	25	0	8	35	66	.81	-2.30	.60	3	0	T	T	9.6	NW	42	NW	20	15	5	10	4.7	59
Athens	798	989.8	-----	60	35	47.6	----	83	1	7	25	0	12	--	--	.33	-----	.25	3	0	T	0	----	---	--	---	--	13	9	8	4.3	--
Augusta	426	1012.5	1019.3	65	35	50.0	-5.0	86	1	11	25	0	14	39	73	2.34	-.14	1.75	7	1	T	T	6.8	W	--	---	--	14	8	8	4.3	--
Columbus	382	1005.8	1020.3	63	34	48.9	----	85	1	10	25	0	14	37	72	.81	-----	.49	6	0	T	0	6.8	NW	--	---	--	13	10	7	4.2	--
Macon	354	1006.1	1019.3	65	37	51.0	----	88	1	10	25	0	10	37	65	.56	-----	.24	6	1	.2	T	8.6	WNW	34	NW	24	14	9	7	4.1	76
Rome	637	997.0	1020.3	58	31	44.5	----	83	1	3	25	0	19	33	73	1.71	-----	.61	6	1	.8	1	7.6	N	--	---	--	11	9	10	5.4	--
Savannah	38	1016.9	1019.4	67	41	53.9	-2.9	86	1	15	25	0	6	41	69	.87	-1.23	.32	6	0	T	T	9.5	SW	39	NW	25	14	12	4	3.8	74
Valdosta	200	1011.9	1020.0	68	40	54.0	-5.4	87	1	19	25	0	9	41	--	1.77	-.19	.86	6	0	T	0	7.8	NE	--	---	--	18	6	6	3.5	--
IDAHO																																
Boise	2842	922.8	1019.9	52	34	42.6	+2.9	68	4	21	9	0	13	33	73	1.53	+.25	.55	13	0	T	T	11.1	SE	54	SE	16	6	6	18	7.1	45
Lewiston	1413	966.8	1018.9	50	35	42.7	----	71	4	25	9	0	13	35	79	1.77	-----	.64	10	0	.3	T	6.6	E	--	---	--	3	4	23	8.2	--
Pocatello	4444	864.9	1020.6	48	31	39.3	+5.2	60	4	8	10	0	14	29	70	1.37	+.34	.64	11	0	T	T	10.8	SSW	47	SE	16	4	8	18	7.5	38
ILLINOIS																																
Cairo CO	314	1006.4	1019.6	52	34	42.9	-4.4	81	1	5	25	0	14	--	--	6.13	+2.45	2.39	14	7	2.6	2	9.6	---	34	SW	20	--	--	--	6.6	58
Chicago	618	990.9	1016.5	42	26	34.3	-3.4	81	1	-2	24	0	21	25	73	1.63	-.88	.46	9	1	7.0	4	13.0	S	47	N	25	3	10	17	7.7	39
Joliet	580	994.6	1016.7	43	24	33.3	-5.4	81	1	-9	25	0	22	26	79	1.44	-.84	.45	8	1	3.3	2	12.9	S	--	---	--	4	13	13	6.7	--
Moline	589	995.3	1018.6	43	24	33.8	-3.7	78	1	-2	24	0	23	24	69	.73	-1.09	.51	5	1	2.1	2	11.3	NW	57	NW	9	6	6	18	6.8	42
Peoria	659	994.9	1018.1	43	25	34.0	-5.8	81	1	-1	24	0	22	25	76	2.04	-1.33	.72	8	2	4.8	3	13.3	S	45	SE	15	3	12	15	7.2	44
Springfield CO	----	-----	-----	--	--	----	----	--	--	--	--	--	--	--	--	-----	-----	-----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Springfield	598	994.6	1018.4	44	25	34.6	-5.3	83	1	-2	24	0	20	26	73	2.48	-.04	1.35	11	2	1.1	1	15.9	NW	40	NW	25	--	--	--	7.5	46

See footnotes at end of table.

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
INDIANA																																
Evansville	385	1003.4	1019.6	50	31	40.1	-4.3	82	1	-3	25	0	19	30	76	5.07	+1.33	2.47	14	8	2.6	2	9.9	WNW	40	SW	20	--	--	--	7.6	44
Fort Wayne	801	983.7	1016.0	43	27	34.9	-3.9	79	1	-1	25	0	21	28	80	5.28	+2.40	1.74	15	1	14.1	9	10.4	W	36	NW	25	4	10	16	7.5	35
Indianapolis CO	----	------	------	--	--	---	---	--	--	--	--	--	--	--	--	----	-----	----	--	--	-----	--	----	---	--	---	--	--	--	--	---	---
Indianapolis	796	986.8	1017.2	45	28	36.4	-4.3	81	1	-2	25	0	20	29	80	5.52	+2.17	2.09	15	1	3.8	3	14.0	W	55	W	26	--	--	--	7.7	33
South Bend	768	986.1	1015.2	43	26	34.6	-5.5	82	1	-7	25	0	21	27	76	4.27	+1.56	1.91	11	1	12.6	6	14.9	SW	*42	*NNW	25	3	4	23	8.2	--
Terre Haute	585	996.6	1018.4	45	27	36.2	-6.2	81	1	-4	25	0	21	28	78	4.10	+.79	1.81	15	4	4.7	4	10.4	NW	34	W	26	--	--	--	7.9	36
IOWA																																
Burlington	605	991.9	1018.3	44	24	33.7	-4.9	81	1	0	24	0	23	25	73	.71	-1.36	.28	5	1	1.3	1	12.0	NW	41	NW	26	4	9	17	7.0	44
Charles City CO	1013	980.0	1018.0	39	21	30.1	-2.9	64	15	2	24	0	26	--	--	.42	-1.11	.30	5	0	.8	T	7.6	---	22	NW	9	11	6	13	5.7	47
Davenport CO	579	995.3	------	43	27	35.0	-4.0	78	1	-2	24	0	20	--	--	.91	-.91	.63	5	1	1.7	1	----	---	---	---	---	---	---	---	---	---
Des Moines	800	986.8	1019.1	45	23	33.9	-4.5	75	15	1	24	0	24	23	68	.38	-1.05	.26	3	0	.8	1	14.5	NW	49	W	16	--	--	--	6.2	51
Dubuque CO	641	990.9	1016.9	42	25	33.3	-3.7	76	1	-4	24	0	23	--	--	1.39	-.31	.89	5	1	2.1	1	7.0	---	23	NW	†16	--	--	--	6.5	46
Sioux City	1097	976.6	1019.3	44	20	32.3	-1.7	70	5	0	23	0	25	20	67	.41	-.59	.35	4	0	.3	T	11.6	NW	42	NW	†16	10	6	14	6.3	62
KANSAS																																
Concordia CO	1375	968.8	1020.0	50	29	39.2	-2.2	78	5	8	24	0	20	--	--	.12	-.87	.12	1	0	T	T	8.2	---	27	N	23	--	--	--	6.3	50
Dodge City	2594	930.2	1019.5	55	26	40.4	-2.2	79	5	6	24	0	20	20	52	.07	-.66	.05	2	--	T	T	13.1	N	56	N	2	7	14	9	5.7	71
Goodland	3645	889.9	1020.1	53	21	37.3	-3.2	78	5	1	24	0	25	19	59	.02	-.60	.01	2	0	.1	T	12.5	SW	38	NNW	2	8	7	15	6.5	--
Topeka CO	----	------	------	--	--	---	---	--	--	--	--	--	--	--	--	----	-----	----	--	--	-----	--	----	---	---	---	---	---	---	---	---	---
Topeka	926	987.1	1020.0	51	27	39.4	----	78	15	10	24	0	21	25	66	.24	-----	.12	4	0	.4	T	10.7	SSW	34	N	†8	--	--	--	6.6	51
Wichita	1372	969.5	1019.1	54	31	42.3	-2.5	75	15	11	24	0	16	24	56	.26	-1.13	.22	4	0	T	T	13.3	S	43	N	†3	--	--	--	6.1	76
KENTUCKY																																
Lexington	979	981.4	1018.2	48	29	38.5	-6.3	80	1	-3	25	0	20	30	74	5.04	+1.70	1.39	15	3	9.7	8	14.1	SSW	--	---	--	4	9	17	7.4	--
Louisville CO	----	------	------	--	--	---	---	--	--	--	--	--	--	--	--	----	-----	----	--	--	-----	--	----	---	---	---	---	---	---	---	---	---
Louisville	485	1000.7	1018.2	50	32	40.5	-4.5	83	1	-1	25	0	19	30	69	5.03	+1.42	1.84	13	6	4.8	4	12.3	S	43	S	1	3	11	16	7.5	40
LOUISIANA																																
Baton Rouge	64	1017.3	1020.3	69	42	55.4	-4.7	85	1	25	25	0	4	43	71	1.43	-2.16	.56	5	1	.0	0	6.6	SE	--	---	--	--	--	--	4.2	--
Lake Charles	12	1018.6	1019.8	71	45	57.8	-2.0	85	2	27	25	0	4	47	79	1.45	-2.52	.79	5	2	.0	0	9.1	N	--	---	--	--	--	--	4.3	--
New Orleans CO	12	------	------	--	--	---	---	--	--	--	--	--	--	--	--	----	-----	----	--	--	-----	--	----	---	---	---	---	---	---	---	---	70
New Orleans	12	1019.0	1020.2	69	45	57.1	----	83	2	32	5	0	1	46	75	.91	-----	.52	5	1	T	0	9.1	E	*30	*NNW	†3	--	--	--	3.6	--
Shreveport	174	1007.5	1019.8	67	42	54.2	-2.3	85	1	23	25	0	7	42	72	1.91	-1.74	1.28	8	5	.0	0	10.7	SSW	36	S	19	--	--	--	5.1	64
MAINE																																
Caribou	624	991.5	1015.5	44	29	36.1	+8.9	63	2	10	24	0	20	31	82	6.53	+3.86	1.73	14	0	2.2	1	14.3	SSE	*40	W	5	1	7	22	8.7	--
Eastport	33	1012.9	1015.6	49	38	43.3	+6.6	61	5	24	23	0	8	--	--	8.57	+5.25	2.52	13	2	2.3	1	13.2	---	52	SE	26	4	3	23	8.2	30
Portland	61	1010.5	1014.4	51	32	41.5	+4.2	73	2	13	23	0	16	36	82	5.73	+2.27	1.81	12	0	3.1	1	8.8	SSW	66	E	26	6	3	21	7.3	42
MARYLAND																																
Baltimore CO	14	------	------	--	--	---	---	--	--	--	--	--	--	--	--	----	-----	----	--	--	-----	--	----	---	55	E	25	--	--	--	----	58
Baltimore	146	1011.2	1016.3	57	36	46.2	----	86	1	15	26	0	14	36	69	2.05	-----	1.51	8	0	.5	T	12.4	S	--	---	--	5	13	12	6.2	--
Frederick	294	------	------	56	33	44.7	----	83	1	11	27	0	16	--	--	2.96	-----	1.52	9	0	T	T	----	---	---	---	---	---	---	---	---	---
MASSACHUSETTS																																
Boston	12	1010.2	1014.9	56	40	47.8	+5.8	83	2	27	23	0	3	37	69	6.17	+2.84	2.59	10	0	T	T	13.7	SW	80	SE	26	7	3	20	7.0	47
Nantucket	43	1014.6	1015.0	55	42	48.2	+3.8	65	10	28	23	0	1	43	80	6.23	+3.01	2.38	13	1	T	0	13.1	NW	47	E	25	6	5	19	7.0	38
Pittsfield	1153	971.2	1014.2	48	30	39.4	+3.4	76	2	16	23	0	19	--	--	6.36	+3.10	2.80	13	0	6.0	3	10.1	---	---	---	---	5	2	23	8.0	--
MICHIGAN																																
Alpena CO	587	989.5	1012.5	41	28	34.6	+.2	77	1	1	24	0	21	--	--	3.02	+.42	1.61	13	0	19.4	7	12.2	---	36	NW	16	5	7	18	7.7	26
Detroit	619	986.5	1014.1	44	30	36.7	-2.5	81	1	7	24	0	18	29	78	4.05	+1.61	1.13	16	0	9.2	7	12.0	NW	40	W	16	--	--	--	7.6	36
Escanaba CO	594	990.2	1013.2	38	24	30.5	-2.6	53	1	-7	24	0	24	--	--	1.60	-.53	.63	10	1	6.6	5	13.1	---	56	N	25	--	--	--	7.9	26
Grand Rapids CO	----	------	------	--	--	---	---	--	--	--	--	--	--	--	--	----	-----	----	--	--	-----	--	----	---	---	---	---	---	---	---	---	---
Grand Rapids	638	988.5	1014.5	42	27	34.4	-1.4	81	1	-10	25	0	20	27	79	2.64	-.13	.71	18	3	17.5	8	13.4	SSW	38	W	16	--	--	--	8.3	23
Lansing	859	981.7	1014.9	41	27	34.0	-3.2	79	1	-2	25	0	18	27	80	2.97	+.49	.71	16	1	13.6	6	16.5	W	47	NW	25	--	--	--	8.0	21
Marquette CO	677	985.1	1012.5	36	24	30.2	-3.1	50	15	1	24	0	25	--	--	4.56	+1.65	1.39	17	3	23.8	15	10.7	---	37	NW	16	--	--	--	9.0	36
Muskegon	627	990.5	1014.2	42	28	35.1	-4.6	73	1	-14	25	0	20	28	76	2.33	-.08	.46	15	2	16.9	8	12.8	W	--	---	--	1	6	23	8.8	--
Sault Ste. Marie	721	988.8	1012.3	37	23	30.1	-.3	55	1	3	24	0	25	26	84	2.74	-.27	.61	20	0	19.6	10	9.8	NW	30	NW	†17	--	--	--	8.1	31
Ypsilanti	722	984.8	1014.2	44	28	35.9	----	81	1	2	24	0	20	28	78	3.79	-----	1.20	14	0	9.2	5	12.9	W	*40	*NW	25	4	9	17	7.5	--
MINNESOTA																																
Duluth CO	----	------	------	--	--	---	---	--	--	--	--	--	--	--	--	----	-----	----	--	--	-----	--	----	---	---	---	---	---	---	---	---	---
Duluth	1128	961.7	1015.5	29	15	22.2	----	49	1	-7	23	0	29	17	82	1.88	-----	.78	11	0	10.6	6	11.9	NW	41	NW	9	--	--	--	7.2	41
Intern'l Falls	1179	973.9	1016.7	26	12	19.1	-6.0	44	1	-5	23	0	30	16	85	1.71	+.71	.93	17	0	16.7	9	----	---	---	---	---	5	4	21	7.4	--
Minneapolis	830	982.1	1016.9	36	20	27.8	-4.6	60	5	-5	23	0	24	19	73	.89	-.38	.31	8	0	5.6	2	12.6	NW	43	W	6	--	--	--	6.1	47
Rochester	1014	979.0	1017.5	36	18	27.3	-5.5	60	15	-5	24	0	26	19	74	.78	-.79	.34	6	0	1.4	1	12.1	WNW	--	---	--	6	7	17	7.0	--
St. Cloud	1034	977.7	1017.3	34	15	24.0	-6.7	57	5	-7	23	0	29	17	78	1.98	+.76	1.18	8	1	8.4	3	9.1	WNW	--	---	--	5	8	17	6.8	--
St. Paul	703	989.8	1017.2	36	20	28.0	-4.5	60	5	-3	23	0	26	19	73	.73	-.57	.22	8	1	4.3	2	12.3	NW	36	WNW	9	7	7	16	6.6	--
MISSISSIPPI																																
Jackson	315	1008.5	1020.5	66	39	52.3	-3.5	84	1	18	25	0	9	38	65	2.94	-.47	2.30	6	3	T	0	8.3	SSE	34	NW	20	14	6	10	4.4	66
Meridian	294	1006.8	1020.6	65	35	50.3	-1.5	84	1	16	25	0	14	39	72	2.30	-1.02	1.77	4	3	T	T	6.7	SW	--	---	--	16	8	6	3.7	--
Vicksburg	234	1012.2	------	65	42	53.4	-3.2	81	1	20	25	0	3	--	--	3.40	-.31	1.66	5	2	T	T	9.2	---	30	N	24	13	8	9	4.7	63
MISSOURI																																
Columbia	733	989.5	1019.0	47	27	37.2	-5.5	81	1	4	24	0	21	26	69	1.23	-.97	.51	7	2	.4	T	10.8	S	33	NNW	23	--	--	--	6.8	--
Columbia CO	733	------	------	--	--	---	---	--	--	--	--	--	--	--	--	----	-----	----	--	--	-----	--	----	---	---	---	---	---	---	---	---	40
Kansas City	741	983.7	1019.6	51	31	40.8	-2.9	79	15	9	24	0	16	25	59	.22	-2.00	.16	4	0	.2	T	12.1	S	39	S	15	--	--	--	6.6	45
St. Joseph	809	983.4	1019.3	50	27	38.4	-3.1	78	15	8	23	0	21	26	68	.51	-1.07	.29	5	0	1.2	1	11.2	NW	41	SW	15	8	9	13	6.1	56
St. Louis CO	465	------	------	--	--	---	---	--	--	--	--	--	--	--	--	----	-----	----	--	--	-----	--	----	---	37	SW	†1	--	--	--	7.7	44
St. Louis	465	997.6	1018.6	47	30	38.4	-5.5	85	1	3	24	0	19	27	69	2.76	+.36	1.32	7	2	.8	1	9.6	NW	--	---	--	--	--	--	---	--
Springfield	1265	970.5	1019.3	52	28	40.0	-5.0	78	1	7	24	0	19	28	69	.48	-2.31	.27	8	3	.3	T	12.9	NW	40	S	15	8	5	17	6.5	59
MONTANA																																
Billings	3568	891.6	1019.0	42	22	31.9	-3.5	65	4	-4	23	0	23	21	68	.71	-----	.26	9	0	8.9	3	11.7	SW	45	W	†21	5	9	16	7.2	48
Butte	5553	829.0	1021.8	39	13	25.9	-3.4	64	4	-14	9	0	28	19	74	1.20	+.80	.33	14	0	14.8	6	8.1	S	--	---	--	4	6	20	7.7	--
Glasgow CO	2090	942.1	1019.4	37	12	24.2	-3.5	67	4	-19	19	0	29	17	73	.67	+.17	.21	10	0	7.7	2	----	---	---	---	---	5	6	19	7.2	--
Great Falls	3663	887.9	1018.0	42	22	31.7	-4.4	70	4	-10	22	0	22	18	61	1.19	+.51	.38	9	0	12.9	4	16.5	SW	67	SW	21	4	7	19	7.5	47
Havre CO	2488	926.9	1019.0	39	14	26.1	-5.1	71	4	-25	23	0	29	--	--	.41	-.20	.20	4	0	8.9	4	7.9	---	43	W	21	7	5	18	6.8	38
Helena	3893	874.0	1021.2	37	14	25.7	-6.1	65	4	-4	9	0	27	18	72	1.50	+1.05	.50	11	1	19.9	7	5.7	WSW	45	SW	21	4	7	19	7.7	44
Kalispell	2965	912.3	1018.5	38	24	30.8	----	59	4	9	9	0	26	24	--	.96	-----	.20	13	0	7.0	2	8.1	S	--	---	--	4	3	23	8.1	--
Miles City	2629	933.0	1019.9	39	16	27.4	----	71	4	-14	23	0	29	22	--	.52	-----	.19	8	0	5.9	5	8.9	SSE	--	---	--	5	5	20	7.4	--
Missoula	3201	903.2	1020.8	38	21	29.7	-1.7	58	4	-1	19	0	25	26	84	1.74	+.84	.40	21	0	12.9	5	4.4	SE	35	NW	5	3	4	23	8.3	22
NEBRASKA																																
Grand Island	1841	950.9	1019.1	47	23	35.0	----	75	5	2	20	0	22	21	63	.47	-----	.31	4	1	1.7	1	12.5	NW	--	---	--	6	11	13	6.4	--
Lincoln CO	1184	------	------	--	--	---	---	--	--	--	--	--	--	--	--	----	-----	----	--	--	-----	--	----	---	34	N	9	---	---	---	---	53
Lincoln	1180	975.3	1019.7	47	24	35.3	-2.2	75	5	3	20	0	23	23	69	.68	-.39	.30	5	0	1.8	1	9.6	NW	--	---	--	---	---	---	6.1	--
Norfolk	1554	962.4	1019.8	44	21	32.6	-3.8	71	5	-1	20	0	27	21	67	.86	-.19	.65	4	1	2.6	3	14.1	WNW	---	---	---	---	---	---	5.9	--
North Platte	2783	917.7	1019.5	49	20	34.3	-2.3	73	5	-7	24	0	26	21	65	.61	+.14	.22	6	1	4.1	2	10.0	N	44	N	22	4	15	11	6.6	45
Omaha	978	978.0	1019.3	46	25	35.5	-2.8	73	5	6	23	0	22	24	67	.48	-.59	.36	4	0	1.0	1	12.2	NW	43	N	23	---	---	---	5.8	40
Scottsbluff	3950	880.5	1019.8	49	21	34.6	-2.3	70	5	-5	24	0	26	21	63	.39	-.09	.16	3	0	5.0	2	8.4	NW	--	---	--	4	10	16	7.0	--
Valentine CO	2581	924.8	1019.0	46	20	33.0	-1.6	70	5	-5	24	0	26	--	--	.05	-.51	.04	2	1	.5	T	9.2	---	36	NW	†15	3	14	13	6.5	64

See footnotes at end of table.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb.*	*Mb.*	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			*0—3*	*4—7*	*8—10*	*0—10*	%
NEVADA																																
Elko	5075	847.6	1021.0	53	26	39.6	----	65	3	4	10	0	26	30	72	2.17	-----	1.31	6	0	4.0	2	4.9	SW	--	---	--	5	11	14	6.6	--
Ely	6257	811.4	1020.7	54	24	39.0	+6.3	67	25	0	10	0	25	--	--	.54	-0.12	.23	8	0	1.3	1	11.3	---	36	S	16	7	8	15	6.2	65
Las Vegas	2162	941.1	1017.2	71	42	56.6	+5.3	83	8	24	11	0	3	22	31	T	-.22	T	0	0	.0	0	6.0	W	--	---	--	12	12	6	4.1	91
Reno	4404	864.2	1019.7	59	32	45.5	+5.8	73	4	16	10	0	19	32	66	1.43	+.79	.79	7	0	T	0	5.1	S	49	S	16	10	8	12	5.7	63
Winnemucca	4299	870.3	1020.0	57	29	43.0	+4.6	70	4	4	11	0	20	31	65	2.66	+1.98	1.58	7	0	.3	T	7.5	---	38	W	16	9	7	14	6.3	55
NEW HAMPSHIRE																																
Concord	339	1004.1	1014.7	52	30	41.2	+5.8	80	2	11	23	0	17	33	76	4.55	+1.47	2.24	11	0	T	0	6.8	SE	72	NE	26	9	2	19	7.0	37
Mt. Washington	6262	800.5	1016.9	31	18	24.3	+4.7	50	2	-1	22	0	28	--	--	10.76	+4.35	3.44	19	0	14.0	10	37.4	W	--	---	--	4	0	26	8.4	19
NEW JERSEY																																
Atlantic City CO	8	1013.5	1015.6	56	43	49.2	+3.6	80	1	28	29	0	5	--	--	3.67	+.85	2.61	8	0	T	T	17.6	---	72	E	25	6	10	14	6.3	66
Newark	11	1013.9	1015.2	56	38	47.0	+3.0	85	1	26	26	0	10	36	67	5.07	+1.64	2.74	8	0	T	T	11.2	SW	*82	E	25	6	12	12	6.3	--
Trenton CO	56	1008.1	1014.9	55	38	46.9	+2.5	83	1	22	26	0	12	--	--	4.16	+1.43	2.31	9	2	1.4	1	10.7	---	64	E	25	6	13	11	6.7	54
NEW MEXICO																																
Albuquerque	5310	850.7	1017.6	63	34	48.3	+5.0	74	8	14	10	0	12	18	34	T	-.46	T	0	0	T	T	7.8	N	36	NW	19	16	10	4	3.7	91
Clayton	4969	848.6	1018.4	60	26	43.1	-.2	79	5	2	10	0	22	22	49	T	-.55	T	0	0	T	T	14.3	W	--	---	--	10	7	13	5.8	--
Raton	6379	806.0	1018.9	59	21	39.6	----	74	5	-6	10	0	29	14	42	.06	-----	.06	1	0	1.5	T	8.4	NE	--	---	--	9	10	11	5.5	--
Roswell	3611	893.7	1018.4	69	29	48.8	+.7	86	8	10	11	0	20	21	38	T	-.85	T	0	0	T	T	7.1	SSE	42	NE	2	21	4	5	2.9	95
NEW YORK																																
Albany	277	1009.8	1013.9	50	32	41.3	+5.0	82	2	16	23	0	17	33	74	2.65	+.17	1.08	12	0	4.0	3	9.8	S	70	E	25	3	8	19	7.7	27
Bear Mountain	1300	------	------	48	35	41.9	----	79	1	21	26	0	13	--	--	5.39	-----	2.21	8	1	1.3	1	----	---	--	---	--	5	10	15	6.7	--
Binghamton CO	858	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	33	E	25	--	--	--	---	32
Binghamton	828	982.7	1014.0	49	30	39.6	----	80	1	18	27	0	19	32	75	3.94	-----	1.64	12	0	9.4	4	7.8	WSW	--	---	--	0	6	24	8.6	--
Buffalo	693	984.4	1013.0	46	32	39.0	+.5	76	1	17	26	0	16	31	76	4.83	+1.81	1.27	21	0	15.2	7	15.8	S	49	E	25	1	6	23	8.7	22
New York CO	10	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	----	---	--	--	--	--	---	58
New York	19	1013.5	1015.2	56	41	48.5	----	83	1	30	26	0	4	38	68	6.61	-----	3.21	10	0	.1	T	----	---	68	SE	25	5	9	16	6.9	--
Oswego	292	1000.0	1012.5	48	35	41.3	+1.9	78	1	24	23	0	11	--	--	5.17	+1.78	2.18	18	0	3.8	3	11.7	---	48	SE	25	1	5	24	8.9	15
Rochester	543	993.6	1013.0	47	32	39.6	+.9	81	1	21	26	0	19	32	76	5.51	+2.97	2.10	15	1	10.6	6	12.6	WSW	59	E	25	3	3	24	8.2	23
Syracuse	399	991.2	1013.4	48	34	40.9	+3.7	81	1	19	23	0	17	34	71	3.91	+.85	1.26	18	1	8.1	5	12.2	WSW	59	E	25	1	5	24	8.7	16
NORTH CAROLINA																																
Asheville CO	2203	------	------	55	30	42.1	-3.0	83	1	1	25	0	20	--	--	1.03	-1.20	.42	9	0	3.1	2	----	---	35	NW	21	9	10	11	5.6	52
Asheville	2093	------	1018.8	--	--	----	----	--	--	--	--	--	--	30	75	----	-----	----	--	--	----	--	8.2	SSW	--	---	--	--	--	--	---	--
Charlotte CO	741	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	29	SW	20	--	--	--	---	73
Charlotte	753	989.5	1017.6	61	34	47.4	-1.5	84	1	11	26	0	15	35	66	1.96	-.61	.97	7	1	T	T	8.0	SW	--	---	--	11	10	9	4.9	--
Greensboro	891	985.4	1017.8	58	31	44.5	-2.2	85	1	13	26	0	19	33	70	2.11	-.35	1.02	6	1	1.1	1	8.3	SW	28	NW	25	12	7	11	5.1	56
Hatteras	4	1016.9	1017.3	64	49	56.3	0	78	1	26	25	0	3	47	74	2.34	-1.15	1.00	7	5	T	T	12.7	WSW	45	SW	25	14	4	12	4.7	70
Raleigh CO	400	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	25	SW	20	--	--	--	---	71
Raleigh	438	1001.7	1017.5	61	35	48.0	----	88	1	14	26	0	17	35	66	1.36	-----	.65	7	1	T	T	6.8	SW	--	---	--	14	6	10	4.6	--
Wilmington CO	6	1016.3	------	63	43	53.1	-2.9	83	1	16	26	0	4	--	--	1.63	-.33	1.01	5	1	T	0	----	---	41	SW	24	11	12	7	3.5	71
Wilmington	30	------	1018.2	--	--	----	----	--	--	--	--	--	--	44	--	----	-----	----	--	--	----	--	6.0	SW	--	---	--	--	--	--	---	--
Winston-Salem	967	965.1	1017.6	57	34	45.6	-2.2	84	1	10	26	0	14	31	58	1.46	-.90	.85	5	0	2.2	1	8.6	WSW	--	---	--	13	8	9	5.0	--
NORTH DAKOTA																																
Bismarck	1653	956.3	1019.5	34	11	22.2	-4.3	65	5	-13	24	0	30	14	75	.24	-.33	.15	5	0	3.3	2	10.3	WNW	50	NW	5	9	7	14	6.2	62
Devils Lake CO	1471	962.8	1018.6	28	10	19.2	-5.3	63	5	-14	23	0	30	--	--	.55	-.17	.32	6	0	8.6	5	9.6	---	38	NW	5	--	--	--	6.4	43
Fargo	895	982.1	1018.0	31	13	22.3	-4.8	68	5	-9	23	0	29	14	72	.50	-.40	.27	7	0	4.9	2	14.5	NNW	54	NW	8	--	--	--	6.3	40
Williston CO	1877	948.9	1019.2	33	13	23.3	-3.9	64	4	12	23	0	28	14	71	.22	-.36	.11	7	0	1.7	1	7.9	---	45	W	5	--	--	--	7.0	50
OHIO																																
Akron	1210	969.2	1014.9	43	28	35.1	-4.7	79	1	7	24	0	20	29	79	4.44	+1.91	1.25	17	0	22.3	17	11.5	S	--	---	--	2	4	24	8.3	--
Cincinnati CO	553	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	----	---	--	--	--	--	---	19
Cincinnati	871	984.4	1017.1	46	30	37.8	----	79	1	0	25	0	20	29	73	5.37	-----	2.03	16	3	8.0	7	12.8	SW	--	---	--	2	8	20	7.9	--
Cleveland CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Cleveland	787	985.8	1014.1	45	30	37.4	-1.6	82	1	7	24	0	19	30	77	6.44	+3.80	1.94	20	1	22.3	21	12.0	S	42	W	16	2	5	23	8.3	27
Columbus CO	724	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	----	---	--	--	--	--	---	31
Columbus	815	985.1	1015.8	45	29	37.0	-3.1	80	1	5	25	0	19	30	77	5.40	+2.33	1.83	15	3	15.2	13	11.2	NW	*30	SSW	20	1	8	21	8.4	--
Dayton	1002	979.3	1016.4	44	28	35.9	-4.5	79	1	3	25	0	21	29	76	4.96	+2.10	2.28	16	2	12.7	12	14.9	WNW	56	W	25	0	13	17	7.8	38
Sandusky	603	990.9	------	45	32	38.4	-2.7	82	1	6	24	0	18	--	--	4.89	+2.50	1.62	18	1	19.8	12	10.4	---	35	NW	25	3	5	22	8.0	30
Toledo	621	991.2	1014.9	44	28	35.9	-2.8	80	1	3	24	0	21	29	78	3.73	+1.33	1.42	15	0	9.1	7	13.5	WSW	41	NW	25	3	9	18	7.5	31
Youngstown	1178	970.9	1014.4	44	28	36.0	-4.2	79	1	6	25	0	19	29	78	5.39	+3.07	1.56	18	0	30.6	26	12.3	SW	*30	WNW	20	3	5	22	8.2	--
OKLAHOMA																																
Oklahoma City CO	1254	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	29	N	8	--	--	--	---	76
Oklahoma City	1254	971.9	1019.3	60	34	46.8	-2.0	79	15	15	24	0	12	29	57	.50	-1.37	.50	2	0	T	T	15.4	N	--	---	--	--	--	--	4.7	--
Tulsa	672	994.6	1019.2	59	33	46.1	-2.8	82	15	14	24	0	16	27	55	.27	-1.83	.27	3	0	.0	0	12.2	S	39	N	8	--	--	--	5.0	71
OREGON																																
Baker	3369	------	------	--	--	----	----	--	--	--	--	--	--	30	--	----	-----	----	--	--	----	--	----	SE	--	---	--	--	--	--	---	--
Baker CO	3446	897.1	1019.8	47	30	38.7	+2.7	61	25	16	9	0	17	--	--	.63	-.42	.23	13	0	3.6	3	6.1	---	26	SW	30	3	5	22	8.1	38
Burns CO	4143	874.4	1019.2	50	27	38.6	+3.4	65	4	13	10	0	23	30	74	.70	-.60	.23	10	0	2.2	1	----	---	--	---	--	3	7	20	7.9	--
Eugene	364	1004.1	1017.9	54	41	47.3	----	64	2	27	13	0	6	44	90	9.43	-----	3.65	21	0	T	0	8.1	S	--	---	--	1	3	26	9.0	--
Meacham	4050	876.7	1019.3	43	30	36.2	----	59	4	18	9	0	20	30	80	3.36	-----	1.17	18	0	9.6	4	6.8	ESE	--	---	--	4	2	24	8.3	--
Medford	1314	970.9	1019.3	55	39	46.9	+3.0	72	4	26	11	0	3	41	84	2.16	-.18	1.20	12	0	.0	0	4.0	SE	*35	SE	†9	3	3	24	8.5	--
Pendleton	1489	964.1	1018.8	48	36	42.0	+.6	63	3	26	10	0	11	36	81	1.81	+.16	.67	14	0	3.2	3	7.8	S	--	---	--	6	3	21	7.7	--
Portland CO	30	------	------	--	--	----	----	--	--	--	--	--	--	--	--	10.65	+4.55	----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Portland	21	1016.3	1017.7	52	41	46.4	+1.1	60	6	26	13	0	4	41	84	8.67	-----	2.43	20	0	.0	0	8.1	SE	38	S	15	2	5	23	8.7	26
Roseburg CO	479	999.7	1018.6	56	43	49.8	+3.9	68	3	31	10	0	2	--	--	5.91	+1.25	2.66	17	0	T	0	3.7	---	35	W	30	1	4	25	8.7	19
Salem	195	1009.8	1017.5	54	40	46.8	+1.2	64	2	27	13	0	7	43	87	9.67	+3.56	2.82	20	0	.0	0	8.4	S	--	---	--	3	3	24	8.5	--
Sexton Summit CO	3836	------	------	49	38	43.7	----	64	3	25	14	0	6	--	--	4.42	-----	1.29	17	0	6.8	4	----	---	--	---	--	7	2	21	7.5	--
Troutdale	29	------	------	53	41	46.5	----	63	3	26	19	0	2	41	83	10.53	-----	2.03	19	0	T	T	10.3	E	*31	SSW	30	2	5	23	8.4	--
PENNSYLVANIA																																
Allentown	381	1001.0	1015.5	52	33	42.6	+.6	81	1	20	26	0	16	34	74	4.05	+1.20	2.70	9	1	1.9	1	11.4	W	--	---	--	6	10	14	6.9	--
Curwensville	2215	------	------	42	26	34.0	----	76	1	2	26	0	21	28	82	10.83	-----	4.02	21	1	21.4	13	12.1	W	*30	WNW	21	2	6	22	8.2	--
Erie CO	655	------	------	46	34	39.8	-1.6	82	1	10	26	0	13	--	--	8.93	+5.63	2.10	23	1	46.9	24	10.7	---	30	SW	16	4	1	25	8.5	15
Harrisburg	335	1001.0	1015.5	53	34	43.6	+.8	84	1	14	26	0	13	33	69	3.04	+.78	2.21	7	2	2.7	2	8.9	W	58	SE	25	4	10	16	7.1	43
Park Place	1932	------	------	48	31	39.3	----	78	1	10	26	0	17	--	--	7.06	-----	4.13	16	0	5.9	4	----	---	--	---	--	6	6	18	7.4	--
Philadelphia CO	26	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	----	---	--	--	--	--	---	62
Philadelphia	13	1014.2	1015.3	57	38	47.3	+3.4	84	1	21	26	0	11	37	69	5.22	+2.52	3.46	8	1	1.8	2	11.5	SSW	50	SE	25	4	12	14	6.5	--
Pittsburgh CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Pittsburgh	1248	984.4	1015.3	46	31	38.3	-2.9	80	1	7	25	0	17	30	72	7.29	+5.00	2.11	17	1	32.3	23	11.1	S	35	S	20	2	6	22	8.5	31
Reading CO	266	1003.1	1015.2	55	37	46.1	+2.2	84	1	20	26	0	11	--	--	7.35	+4.62	6.08	9	2	1.7	1	13.0	---	69	E	25	5	7	18	7.1	50
Scranton CO	746	985.1	1014.9	51	34	42.6	+2.1	81	1	20	26	0	15	--	--	5.80	+3.03	3.46	13	0	5.1	5	7.2	---	44	E	25	7	11	12	6.5	44
Williamsport	527	995.3	1014.6	50	32	40.9	-.3	83	1	14	26	0	18	32	72	5.49	+2.74	2.44	15	1	7.2	5	11.6	W	*77	E	25	3	8	19	7.5	--
RHODE ISLAND																																
Block Island CO	35	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Block Island	105	------	------	54	43	48.7	+4.1	67	2	33	21	0	0	--	--	3.91	+.28	1.75	11	1	T	T	----	---	78	ESE	25	8	5	17	6.6	--
Providence CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	---	----	---	--	--	--	--	---	--
Providence	55	1009.1	1015.4	55	38	46.1	+6.7	81	2	23	23	0	10	37	73	6.89	+3.83	2.76	10	0	T	0	9.8	SSW	56	SE	25	7	6	17	6.8	45

See footnotes at end of table.

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: 01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0—3	4—7	8—10	0—10	%
SOUTH CAROLINA																																
Charleston CO	9	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	----	34	W	20	--	--	--	---	71
Charleston	41	1016.9	1018.7	66	40	53.0	-2.6	85	1	15	25	0	6	41	73	1.17	-0.97	0.46	5	2	T	0	7.2	WSW	--	---	--	16	9	5	3.6	--
Columbia CO	332	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	---	30	NW	20	--	--	--	---	70
Columbia	217	1009.5	1018.1	65	36	50.2	----	88	1	16	26	0	13	37	69	1.70	------	.80	7	1	T	T	6.8	W	--	---	--	17	7	6	4.0	--
Florence	146	1012.5	1018.1	65	37	51.3	----	86	1	16	26	0	11	38	68	.98	------	.71	6	1	T	T	7.5	SSW	--	---	--	14	6	10	4.2	--
Greenville	1006	979.7	1017.5	59	35	47.3	-2.3	84	1	11	25	0	11	34	65	.70	-2.48	.38	6	1	T	T	7.0	SW	40	NW	20	12	9	9	4.8	65
Spartanburg	801	988.2	1018.5	60	35	47.1	-3.3	83	1	11	25	0	12	34	64	.85	-1.85	.29	6	0	T	0	8.4	WSW	•50	WNW	20	12	9	9	5.0	--
SOUTH DAKOTA																																
Huron	1282	970.2	1019.3	38	17	27.5	-4.0	70	5	-6	23	0	29	17	70	.56	-.03	.35	7	0	1.2	T	12.4	NW	56	NW	18	6	9	15	6.4	50
Rapid City	3215	902.1	1019.7	44	20	32.1	-2.5	68	5	-2	24	0	27	20	67	.35	-.14	.17	4	1	3.0	2	12.2	NW	57	NW	22	3	10	17	7.2	40
Sioux Falls	1420	966.1	1019.2	40	18	29.0	-4.5	70	5	-6	23	0	28	19	72	.33	-.72	.19	4	0	.3	T	12.1	NW	43	NW	8	8	9	13	6.3	--
TENNESSEE																																
Bristol	1519	963.1	1018.6	52	28	40.3	-7.1	79	1	5	25	0	20	33	69	2.38	-.07	.76	11	0	8.1	6	7.8	W	--	---	--	7	7	16	6.7	--
Chattanooga CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	----	--	---	--	--	--	--	---	--
Chattanooga	670	994.2	1019.6	57	33	44.8	-3.1	83	1	4	25	0	17	33	68	1.79	-1.57	.82	6	0	2.8	3	6.8	S	38	NW	20	9	7	14	6.0	43
Knoxville	949	983.4	1019.3	54	32	43.4	-3.1	81	1	5	25	0	16	32	67	2.48	-.59	.89	7	0	5.5	6	9.4	SW	36	SW	20	9	6	15	6.5	44
Memphis CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	----	--	---	--	--	--	--	---	--
Memphis	263	1005.4	1020.2	58	35	46.5	-3.6	82	1	9	25	0	15	35	68	5.59	+.69	1.75	11	6	1.2	1	11.4	S	41	S	20	12	7	11	5.0	62
Nashville	577	999.0	1019.4	53	32	42.5	-6.5	84	1	-1	25	0	18	33	72	6.60	+3.10	2.68	12	4	9.2	7	9.3	S	31	NW	20	9	5	16	6.3	43
TEXAS																																
Abilene	1752	957.0	1018.0	69	38	53.8	+1.2	89	8	18	11	0	11	28	43	T	-1.35	T	0	0	.0	0	14.3	S	50	N	3	19	5	6	3.1	87
Amarillo	3590	890.6	1018.0	62	30	46.0	+2.2	80	5	9	10	0	17	24	50	.03	-.89	.03	1	0	T	T	12.7	N	45	NE	8	--	--	--	4.6	78
Austin	515	997.3	1019.1	73	47	59.9	+1.4	88	1	24	12	0	4	40	58	.03	-2.28	.02	2	1	.0	0	10.2	S	42	N	3	--	--	--	3.5	70
Big Spring	2533	997.0	1018.8	70	38	54.2	+1.2	88	8	18	11	0	0	27	42	.00	-1.03	.00	0	0	.0	0	18.4	S	--	---	--	19	7	4	2.7	--
Brownsville	16	1015.9	1017.8	78	57	67.4	+.2	87	2	37	25	0	0	74	55	.75	-1.53	.73	4	2	.0	0	11.3	SE	33	N	13	--	--	--	3.9	60
Corpus Christi	40	1018.3	1019.0	77	55	66.0	+3.2	90	2	36	26	1	0	52	72	.10	-1.89	.10	1	0	.0	0	13.3	S	37	NW	3	15	10	5	3.5	77
Dallas	487	1001.4	1019.2	67	42	54.4	-2.0	86	19	17	11	0	7	36	56	.71	-.83	.36	4	2	T	0	12.4	SSE	42	S	15	--	--	--	3.9	79
Del Rio CO	957	983.7	1017.3	74	47	60.4	+.4	91	19	21	11	1	2	40	52	.04	-1.20	.02	3	0	.0	0	7.8	---	35	NW	3	18	5	7	3.2	79
El Paso	3920	888.6	1016.7	70	38	54.0	+2.9	81	8	16	11	0	6	26	36	.00	-.50	.00	0	0	.0	0	8.7	N	40	NW	19	--	--	--	2.2	96
Fort Worth	688	994.9	1019.5	68	41	54.6	+.1	87	19	19	11	0	7	32	49	.02	-2.56	.02	2	1	.0	0	15.7	S	50	NNW	3	--	--	--	3.7	--
Galveston CO	7	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	---	54	NW	3	--	--	--	---	64
Galveston	7	1019.6	1019.8	71	56	63.5	+.2	83	1	33	25	0	0	53	77	.88	-2.45	.68	2	2	.0	0	12.4	S	--	---	--	15	11	4	3.7	--
Houston CO	41	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	---	36	NW	3	--	--	--	---	76
Houston	41	1017.6	1020.1	73	48	60.7	+.8	88	2	26	25	0	1	47	72	1.17	-2.59	.83	2	2	.0	0	12.6	S	--	---	--	10	11	9	5.0	--
Laredo	500	1003.1	1017.7	79	55	66.6	+2.8	91	19	35	11	5	0	48	59	2.03	+.86	1.98	4	0	.0	0	10.9	SSE	--	---	--	--	--	--	3.2	--
Lubbock	3238	905.2	1017.9	66	30	48.3	-1.0	82	8	14	24	0	19	25	47	.03	-.63	.03	1	0	T	0	11.3	WNW	48	N	2	17	8	5	3.8	--
Palestine CO	491	1001.4	1016.3	68	45	56.9	-.3	85	15	25	11	0	5	--	--	1.08	-2.35	.82	5	2	.0	0	8.7	---	25	SW	19	13	7	10	4.4	70
Port Arthur CO	5	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	----	----	----	---	37	NW	3	--	--	--	---	78
Port Arthur	5	1018.6	1019.5	71	45	58.4	----	84	2	25	25	0	4	48	81	1.39	------	1.05	3	2	.0	0	10.3	S	--	---	--	12	14	4	4.3	--
San Angelo	1903	950.9	1018.5	72	40	56.1	+2.4	90	8	17	11	1	9	29	43	.00	-1.31	.00	0	0	.0	0	7.8	SSW	•24	•NNW	3	20	5	5	2.7	--
San Antonio	782	994.2	1018.9	73	46	59.4	-.9	86	2	25	25	0	4	41	58	.13	-1.77	.13	2	0	.0	0	9.4	N	43	N	3	--	--	--	4.2	64
Victoria	109	1014.6	1019.0	76	51	63.5	+.1	89	2	29	25	0	2	48	67	.09	-2.44	.05	4	0	.0	0	9.3	SSE	49	N	3	17	5	8	4.0	--
Waco	504	1000.0	1018.4	70	44	56.6	-.9	87	1	19	11	0	5	37	54	.31	-2.38	.13	4	3	.0	0	9.5	S	--	---	--	15	6	9	4.0	--
Wichita Falls	1027	981.7	1018.8	66	35	50.5	-3.6	86	19	14	24	0	13	26	45	T	-1.74	T	0	0	.0	0	12.4	N	48	N	8	--	--	--	3.7	--
UTAH																																
Milford	5029	849.3	1021.5	59	25	42.2	+4.6	72	5	5	10	0	24	24	55	.17	-.49	.10	3	0	.6	1	9.3	S	--	---	--	9	11	10	5.8	--
Salt Lake City CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	---	--	---	--	--	--	--	---	--
Salt Lake City	4222	874.0	1020.7	52	32	41.6	+2.2	64	5	13	10	0	17	32	71	2.00	+.84	.63	8	0	2.5	2	6.5	SSE	32	S	16	4	7	19	7.4	42
VERMONT																																
Burlington	398	998.3	1013.5	48	33	40.2	+3.9	75	2	14	23	0	17	32	74	4.36	+1.70	1.45	20	0	4.8	1	11.5	SSW	72	SE	26	0	8	22	8.6	19
VIRGINIA																																
Cape Henry	16	1015.6	1016.3	60	43	51.4	-.7	84	2	20	26	0	7	--	--	1.97	-.39	1.00	9	0	.5	T	12.8	---	57	NW	20	13	7	10	4.7	69
Lynchburg	947	982.1	1016.5	56	34	44.6	-.6	83	1	11	26	0	16	32	65	1.61	-.72	.80	7	1	T	T	9.8	SSW	37	S	4	7	10	13	6.1	59
Norfolk CO	11	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	---	37	SE	25	--	--	--	---	60
Norfolk	25	1015.9	1017.1	61	39	50.0	+.7	85	1	20	26	0	0	38	69	1.55	-.61	.79	8	0	.6	1	10.8	S	--	---	--	12	8	10	5.0	--
Richmond CO	162	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	---	--	---	--	--	--	--	---	--
Richmond	160	1010.5	1016.5	59	36	47.3	+1.2	86	1	17	26	0	16	36	68	1.74	------	.90	4	2	T	T	8.6	S	31	SW	25	10	5	15	6.0	61
Roanoke	1192	973.6	1016.6	55	32	43.2	-3.8	83	1	9	25	0	18	30	63	1.26	-.95	.62	6	0	8.2	4	11.2	WNW	--	---	--	8	7	15	6.5	--
Urbanna	31	1015.2	1016.2	60	38	49.0	----	83	2	18	26	0	13	--	--	2.01	------	.90	6	0	.8	T	----	---	--	---	--	11	6	13	5.9	--
Washington WB CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	----	----	--	--	----	----	----	---	--	---	--	--	--	--	---	--
Wash. Nat'l. AP	14	1012.2	1016.4	58	38	47.9	+2.7	85	1	17	26	0	9	34	62	2.87	+.50	1.85	5	1	1.6	2	12.1	SSW	52	E	25	4	15	11	6.4	62
WASHINGTON																																
Ellensburg	1727	954.6	1018.6	43	27	35.1	-1.1	53	6	14	19	0	21	31	85	2.25	+.78	.48	19	0	9.7	4	6.1	E	--	---	--	3	5	22	8.2	--
Kelso	17	------	------	51	39	45.2	----	67	3	24	9	0	8	--	--	9.71	------	2.23	24	0	T	0	----	---	--	---	--	2	3	25	8.7	--
North Head CO	194	1007.8	1015.6	52	43	47.5	-.7	61	3	35	19	0	0	--	--	9.98	+1.53	2.28	24	4	T	T	15.3	---	50	S	19	2	3	25	8.8	17
Olympia	190	1009.1	1016.6	50	37	43.4	----	69	3	24	19	0	10	41	92	9.49	------	1.49	23	1	2.3	2	5.6	S	--	---	--	1	3	26	8.9	--
Port Angeles	8	1015.2	1016.3	49	41	44.8	----	66	26	34	18	0	0	40	83	3.89	------	.66	21	0	.3	T	9.0	SW	--	---	--	1	5	24	8.7	--
Seattle	14	1015.5	1016.8	--	--	----	----	--	--	--	--	--	--	41	85	----	------	----	--	--	----	----	----	---	--	S	--	--	--	--	---	--
Seattle CO	14	------	------	51	42	46.8	0	68	3	30	19	0	1	--	--	7.53	+2.50	1.31	19	0	T	T	11.1	---	54	SW	21	1	5	24	8.9	19
Spokane	2357	948.2	1018.5	42	30	36.2	-2.3	60	4	19	19	0	20	30	80	1.96	-.13	.47	16	0	11.5	2	9.5	SSW	40	SW	21	3	9	18	7.7	33
Stampede Pass CO	3960	877.4	1018.1	35	26	30.5	----	56	4	15	19	0	27	--	--	15.57	------	3.04	25	0	75.8	44	13.0	---	51	W	21	2	3	25	8.8	--
Stevenson CO	319	------	------	49	40	44.3	----	59	4	30	19	0	3	--	--	13.95	------	2.71	21	0	1.7	1	----	---	--	---	--	0	3	27	9.2	--
Tacoma CO	127	1009.1	1016.3	50	41	45.6	+1.0	67	3	29	19	0	2	--	--	5.54	-.72	.96	20	1	T	T	9.2	---	40	NE	30	2	5	23	8.2	25
Tatoosh CO	101	1011.9	1014.9	49	42	45.3	-.6	58	26	34	14	0	0	40	80	10.46	-1.47	1.55	23	3	1.7	T	19.2	E	52	S	6	1	4	25	9.0	17
Walla Walla	1200	------	------	--	--	----	----	--	--	--	--	--	--	37	--	----	------	----	--	--	----	----	----	---	--	SE	--	--	--	--	---	--
Walla Walla CO	949	982.7	1019.0	49	37	43.2	+.4	60	3	27	10	0	6	--	--	2.05	+.03	.64	15	0	.9	1	5.0	---	49	SE	16	2	4	24	8.7	19
Yakima	1058	978.3	1018.1	47	31	38.9	+.8	60	6	17	19	0	16	33	81	1.21	-.03	.38	14	0	4.6	3	4.9	W	--	---	--	4	6	20	8.1	--
Seattle-Tacoma AP	379	1002.0	1016.4	49	38	43.6	----	64	3	25	19	0	7	40	88	7.98	------	1.17	20	1	1.0	1	11.0	SSW	--	---	--	1	2	27	9.1	--
WEST VIRGINIA																																
Charleston	950	982.1	------	51	33	41.6	----	81	1	6	25	0	15	--	69	5.81	------	1.47	18	1	26.2	19	9.7	---	40	S	20	2	7	21	8.2	--
Elkins	1969	945.8	1017.2	48	26	37.1	-2.2	69	9	4	25	0	23	30	79	3.79	+1.01	1.25	16	2	37.6	19	----	---	34	W	29	2	7	21	8.1	31
Huntington	565	------	------	53	33	42.8	+1.8	83	1	6	25	0	14	--	--	6.09	+3.09	1.20	16	--	19.6	12	----	---	--	---	--	--	--	--	---	--
Parkersburg	837	------	1017.4	--	--	----	----	--	--	--	--	--	--	32	--	----	------	----	--	--	----	----	----	---	--	---	--	--	--	--	---	--
Parkersburg CO	615	------	------	49	32	40.3	-3.5	82	1	9	25	0	15	--	--	5.05	+2.48	1.40	16	2	34.6	28	----	---	29	S	26	3	6	21	8.3	17
Petersburg	1013	978.3	------	53	31	41.8	----	84	1	10	26	0	18	--	--	3.00	------	1.44	8	2	7.3	7	----	---	--	---	--	4	9	17	7.2	--
WISCONSIN																																
Green Bay	689	988.2	1014.8	38	21	29.7	-4.3	69	1	-7	25	0	26	20	70	1.12	-1.04	.44	8	1	4.3	4	12.9	NW	59	W	23	4	6	20	7.6	39
La Crosse CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	----	----	----	---	--	---	--	--	--	--	---	--
La Crosse	669	990.9	1016.5	39	21	29.7	-4.0	67	1	-10	24	0	26	21	72	.44	-1.12	.23	5	0	1.5	1	11.2	NW	34	W	6	--	--	--	7.3	39
Madison CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	----	----	----	---	--	---	--	--	--	--	---	--
Madison	857	983.4	1016.2	40	22	30.8	-2.4	74	1	-8	25	0	27	22	72	1.04	-.74	.36	6	1	3.7	3	15.5	W	42	W	16	--	--	--	7.9	41
Milwaukee CO	----	------	------	--	--	----	----	--	--	--	--	--	--	--	--	----	------	----	--	--	----	----	----	---	--	---	--	--	--	--	---	--
Milwaukee	674	988.8	1015.2	41	25	32.7	-3.2	77	1	-5	24	0	21	23	71	1.60	-.17	.72	11	1	4.0	3	14.7	NNW	43	W	16	6	4	20	7.3	43

See footnotes at end of table.

CLIMATOLOGICAL DATA

Table 2—Continued

NOVEMBER 1950

State and station	Elevation (ground)	Pressure		Temperature										Average relative humidity	Precipitation						Wind					No. of days (sunrise to sunset)			Sky cover, tenths (sunrise to sunset)	Possible sunshine
		Station	Sea level	Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: †Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point		Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date	Clear	Partly cloudy	Cloudy		
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0—3	4—7	8—10	0—10	%
WYOMING																																
Casper	5346	836.8	1018.0	45	22	33.8	-2.9	62	26	-6	9	0	24	19	56	0.37	-0.42	0.22	7	0	7.1	3	14.0	SW	--	---	--	3	9	18	7.6	--
Cheyenne	6139	811.0	1018.7	46	24	35.1	+.3	68	27	-4	10	0	21	20	56	1.09	+.57	.59	6	0	6.4	5	13.8	WNW	42	W	†5	6	7	17	6.7	56
Lander	5563	836.4	1020.8	43	19	30.8	+.5	64	5	-14	10	0	26	19	64	.75	+.15	.60	4	0	10.7	9	6.9	---	47	W	21	5	10	15	6.7	56
Rock Springs	6741	794.8	1021.7	43	23	33.3	+2.6	58	4	-10	10	0	25	22	65	1.08	+.53	.42	8	0	4.3	2	16.1	W	*47	W	8	5	10	15	7.1	--
Sheridan	4021	884.9	1020.2	45	18	31.5	-1.2	75	4	-3	10	0	29	21	70	1.05	+.42	.46	8	0	9.8	4	8.2	NW	56	NW	22	3	8	19	7.6	54
PACIFIC AREA																																
Canton Island	12	1007.8	1008.1	88	78	83.1	----	92	26	76	29	14	0	72	74	.24	-----	.08	6	0	.0	0	----	---	--	---	--	11	15	4	4.7	--
Hilo	26	1010.2	1011.7	81	66	73.7	----	86	30	62	14	0	0	67	82	10.17	-----	5.83	20	7	.0	0	5.1	SW	*18	SE	†15	1	13	16	7.3	--
Honolulu CO	12	------	------	--	--	74.8	+.3	--	--	--	--	--	--	--	--	3.48	-.36	----	--	--	----	--	----	---	28	NE	25	--	--	--	---	75
Honolulu	7	1012.5	1012.9	83	68	75.4	----	86	3	64	14	0	0	66	75	1.92	-----	.64	10	0	.0	0	6.9	NE	--	---	--	12	13	5	4.5	--
Lihue	115	1007.5	1012.5	81	65	72.9	----	83	2	61	15	0	0	65	80	1.81	-----	.75	14	0	.0	0	7.4	NE	--	---	--	9	12	9	5.4	55
Wake Island	11	1010.8	1011.2	84	74	78.9	----	86	5	65	24	0	0	71	77	8.54	-----	4.34	14	2	.0	0	9.6	E	--	---	--	15	12	3	4.2	--
WEST INDIES																																
San Juan P.R.	9	1009.5	1011.4	83	73	78.1	----	86	14	69	18	0	0	73	85	15.04	-----	4.91	23	3	.0	0	8.7	SE	29	N	8	2	11	17	7.2	31
ALASKA																																
Anchorage	134	1014.2	1019.6	22	2	11.9	-10.5	48	11	-12	23	0	27	3	60	.26	-.78	.24	2	0	1.9	1	6.3	NE	66	NE	23	17	9	4	3.0	77
Annette Island	110	1007.5	1011.5	38	29	33.8	-6.8	52	3	15	22	0	19	26	73	6.02	-5.00	.51	16	0	5.1	3	13.2	NNW	--	---	--	8	3	19	6.9	--
Barrow	22	1014.6	1014.6	23	8	15.3	+15.3	37	10	-9	24	0	30	10	79	.43	+.15	.08	15	0	4.4	7	18.5	SSW	63	W	27	0	6	24	8.7	--
Bethel	21	1022.7	1024.0	25	10	17.5	+.7	42	10	-12	21	0	29	14	81	.99	+.02	.25	15	0	6.1	3	----	N	*35	SSE	10	5	4	21	7.5	--
Cordova	40	1011.2	1012.9	31	11	21.2	-9.2	39	8	-3	18	0	30	13	69	1.75	-7.13	1.08	7	0	6.0	7	3.5	NE	--	---	--	17	3	10	4.4	--
Fairbanks	436	1007.5	1026.1	3	-15	-6.1	-9.4	32	29	-40	25	0	30	-10	78	.99	+.31	.61	9	0	17.6	19	3.2	N	50	WSW	13	10	0	20	6.5	51
Galena	120	1019.0	1024.0	12	-2	5.1	+1.6	38	10	-22	4	0	30	11	71	.33	-.20	.12	8	0	3.8	5	8.9	SE	*38	WNW	13	11	5	14	5.6	--
Gambell	25	1016.6	1017.6	33	25	29.1	+6.7	38	5	17	20	0	12	26	87	1.22	+.19	.34	17	0	10.8	1	22.2	SSW	50	W	10	2	4	24	8.7	--
Juneau	15	1014.5	1015.4	29	16	22.3	-9.7	5	3	0	30	0	27	14	72	2.13	-3.27	.60	11	0	16.7	7	6.4	N	43	SE	2	10	2	18	6.5	41
Kotzebue	10	1018.6	1019.3	20	8	14.0	+8.1	37	10	-6	15	0	30	9	80	.98	+.61	.16	13	0	8.2	5	22.5	ESE	--	---	--	5	4	21	7.8	--
McGrath	334	1011.5	1025.1	11	-4	3.6	+.4	41	10	-31	25	0	30	0	78	.51	-.62	.31	9	0	6.4	5	4.1	NW	*42	SSE	10	12	6	12	5.2	--
Nome	13	1019.9	------	29	16	22.6	+6.7	38	7	-5	3	0	17	--	--	2.53	+1.56	.42	19	0	19.0	10	15.1	N	73	SW	10	5	2	23	8.0	--
Northway	1713	959.4	1027.4	-5	-23	-14.2	-12.0	22	12	-50	25	0	30	-19	73	.31	-.04	.16	9	0	5.7	6	3.8	ESE	--	---	--	10	7	13	5.6	--
St. Paul Island	22	1023.2	1024.4	38	30	33.9	+1.5	42	8	21	26	0	18	29	79	2.46	-.37	.80	15	0	2.7	1	-----	---	--	---	--	2	5	23	8.5	--
Umiat	337	1007.8	------	18	2	9.6	+16.7	41	10	-27	24	0	26	--	--	1.07	-----	.27	14	0	10.7	12	10.4	WSW	--	---	--	1	9	20	8.7	--
Wales	9	1018.3	1019.0	31	21	25.6	+7.7	37	10	1	2	0	28	--	--	.65	+.15	.30	13	0	4.4	4	----	---	--	---	--	2	2	26	9.0	--
Yakutat	28	1011.3	1012.5	35	19	26.5	-8.2	47	2	1	30	0	28	17	66	4.36	-11.64	1.63	9	0	24.2	16	8.1	E	--	---	--	8	9	13	6.0	--

Data from airport unless otherwise specified. CO indicates data from city office.

* Data entered in column headed "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

† Other dates also.

‡ Number of days Max. 70°F. or above for Alaskan Stations.

HEATING DEGREE DAYS

(Base 65°F)

Table 3 — NOVEMBER 1950

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Birmingham	535	579	470
Mobile (CO)	314	315	248
Mobile	341	343	
Montgomery (CO)	404	410	354
Montgomery	455	467	354
ARIZONA			
Flagstaff (CO)	716	1550	1777
Payson (CO)	342	414	
Phoenix (CO)	57	57	184
Phoenix	72	72	
Prescott (CO)	429	549	
Tucson (CO)	72	72	
Winslow	540	624	
Yuma	32	32	122
ARKANSAS			
Ft. Smith	535	585	550
Little Rock	507	559	514
Texarkana (CO)	404	427	
CALIFORNIA			
Bakersfield	148	174	
Beaumont (CO)	182	256	
Bishop	440	544	
Blue Canyon	469	1089	
Burbank	133	159	
Eureka (CO)	304	1340	1579
Fresno	211	262	391
Los Angeles (CO)	104	106	159
Los Angeles	153	211	
Mt. Shasta (CO)	603	1249	
Oakland	178	432	
Red Bluff	257	361	454
Sacramento (CO)	205	287	448
Sacramento	228	327	
Sandberg (CO)	307	602	
San Diego	119	124	218
San Francisco (CO)	131	746	876
San Francisco	157	562	
San Jose	144	263	
Santa Catalina (CO)	118	323	
Santa Maria	177	524	
COLORADO			
Alamosa	981	2017	
Colorado Springs	795	1287	
Denver	770	1119	1269
Grand Junction	695	893	
Pueblo	782	1028	1205
CONNECTICUT			
Bridgeport	563	958	
Hartford	607	1110	1186
New Haven	588	1020	1101
DELAWARE			
Wilmington	598	946	
DIST. OF COLUMBIA			
Washington (CO)	520	726	848
Washington	521	719	
FLORIDA			
Apalachicola (CO)	245	245	178
Daytona Beach	171	171	
Fort Myers (CO)	88	88	
Jacksonville (CO)	245	245	169
Jacksonville	255	255	
Key West (CO)	8	8	2
Key West	10	10	
Melbourne	114	114	
Miami (CO)	61	61	15
Int. Airport, Hialeah	53	53	
Orlando	137	137	
Pensacola (CO)	290	290	184
Tallahassee	310	310	
Tampa	125	125	66
West Palm Beach	58	58	
GEORGIA			
Albany (CO)	368	374	268
Atlanta (CO)	544	604	532
Atlanta	525	570	
Athens	522	584	
Augusta	458	493	401
Columbus (CO)	485	502	
Macon	433	449	418
Rome (CO)	614	680	
Savannah	351	358	252
Valdosta	343	346	
IDAHO			
Boise	662	1084	1264
Lewiston	661	1156	
Pocatello	763	1421	1505
ILLINOIS			
Cairo (CO)	644	744	700
Chicago (CO)	843	1082	1150
Chicago	913	1221	
Chicago University	867	1154	
Joliet	944	1340	
Moline	930	1262	
Peoria	925	1198	1180
Springfield (CO)	852	1031	1018
Springfield	902	1174	
INDIANA			
Evansville	747	915	791
Ft. Wayne	902	1303	1236
Indianapolis (CO)	813	1038	1028
Indianapolis	855	1146	
South Bend	908	1314	
Terre Haute	860	1121	
IOWA			
Burlington	932	1252	
Charles City (CO)	1030	1506	1582
Davenport (CO)	894	1149	1191
Des Moines	929	1232	1263
Dubuque (CO)	942	1279	1348
Keokuk (CO)	851	1050	1058
Sioux City	975	1395	1388
KANSAS			
Concordia (CO)	766	972	1030
Dodge City	731	931	979
Goodland	823	1196	
Topeka (CO)	719	866	935
Topeka	745	950	
Wichita	672	809	839
KENTUCKY			
Lexington	792	988	911
Louisville (CO)	702	842	802
Louisville	737	893	
Pikeville (CO)	670	755	
LOUISIANA			
Baton Rouge	292	292	243
Lake Charles	246	246	
New Orleans (CO)	219	219	168
New Orleans	257	257	
Int.Airport,Moisant	260	260	
Shreveport	352	364	350
MAINE			
Caribou	858	2190	
Eastport (CO)	644	1750	1930
Greenville (CO)	834	2091	2152
Portland	699	1566	1518
MARYLAND			
Baltimore (CO)	497	705	787
Baltimore	572	875	
Frederick (CO)	613	928	
MASSACHUSETTS			
Boston	512	946	1105
Milton	617	1272	
Nantucket	495	1016	1022
Pittsfield (CO)	758	1633	
MICHIGAN			
Alpena (CO)	904	1753	1789
Detroit	849	1264	1270
Escanaba (CO)	1028	2020	1893
Grand Rapids (CO)	869	1283	1342
Grand Rapids	911	1465	
Iron Mountain	1127	2094	
Lansing	925	1488	
Marquette (CO)	1036	2109	1924
Muskegon	888	1510	
Sault Ste. Marie	1041	2266	2067
Traverse City	966	1759	
Ypsilanti	870	1308	
MINNESOTA			
Duluth (CO)	1230	2398	2166
Duluth	1277	2524	
International Falls(CO)	1371	2617	
Minneapolis	1113	1625	1621
Rochester (CO)	1123	1701	
St. Cloud (CO)	1222	1992	1917
St. Paul	1102	1613	
MISSISSIPPI			
Jackson	393	410	378
Meridian	443	470	427
Vicksburg (CO)	364	379	348
MISSOURI			
Columbia (CO)	785	969	952
Columbia	825	1036	
Kansas City	720	875	890
St. Joseph	790	1004	
St. Louis (CO)	769	899	812
St. Louis	796	954	
Springfield	745	935	844
MONTANA			
Billings	984	1731	1687
Butte	1165	2723	
Glasgow (CO)	1221	2107	
Great Falls	994	1903	
Havre	1160	2044	1960
Helena	1177	2174	1940
Kalispell (CO)	1016	2078	2104
Missoula	1052	2018	1925
NEBRASKA			
Grand Island	895	1267	
Lincoln (CO)	848	1064	1148
Lincoln	890	1237	
Norfolk	962	1363	
North Platte	914	1367	1353
Omaha	876	1175	1157
Valentine (CO)	955	1535	1550
NEVADA			
Elko	755	1535	
Ely	776	1606	
Las Vegas (CO)	250	253	456
Reno	579	1158	1270
Tonopah	742	1501	1218
Winnemucca	654	1296	1516
NEW HAMPSHIRE			
Concord (CO)	707	1472	1576
Mt.Washington Obs. (CO)	1211	4041	
NEW JERSEY			
Atlantic City (CO)	477	717	835
Newark	546	865	1002
Trenton (CO)	544	837	975
NEW MEXICO			
Albuquerque	495	542	931
Clayton	651	882	
Roswell	480	517	729
Raton (CO)	755	1171	
NEW YORK			
Albany	707	1326	1300
Bear Mountain (CO)	700	1283	
Binghamton (CO)	718	1293	1415
Binghamton	756	1435	
Buffalo	777	1289	1323
New York (CO)	519	780	921
La Guardia Field	507	774	
Oswego (CO)	705	1290	
Rochester	754	1301	1342
Schenectady (CO)	682	1284	
Syracuse	715	1297	1388
NORTH CAROLINA			
Asheville (CO)	681	854	898
Asheville	723	971	
Charlotte (CO)	492	577	586
Charlotte	530	630	
Greensboro	610	784	
Hatteras (CO)	287	307	335
Raleigh (CO)	475	582	586
Raleigh	519	657	
Wilmington (CO)	379	415	401
Winston-Salem	585	748	
NORTH DAKOTA			
Bismarck	1280	2103	1961
Devils Lake (CO)	1369	2392	2286
Fargo	1274	2084	
Grand Forks	1322	2224	2189
Williston (CO)	1243	2219	2115
OHIO			
Akron	895	1382	
Cincinnati (CO)	736	892	941
Cincinnati	814	1080	
Cleveland (CO)	780	1103	1152
Cleveland	828	1171	
Columbus (CO)	806	1052	1060
Columbus	837	1178	
Dayton	871	1189	1048
Sandusky (CO)	803	1096	1135
Toledo	872	1284	1206
Youngstown	868	1380	
OKLAHOMA			
Oklahoma City (CO)	527	577	630
Oklahoma City	539	588	
Tulsa	556	612	
OREGON			
Baker (CO)	786	1546	1767
Baker	829	1724	
Burns (CO)	783	1528	
Eugene	525	1044	
Meacham (CO)	856	1876	
Medford	538	953	1093
Pendleton	685	1178	
Portland (CO)	510	976	991
Portland	548	1088	
Roseburg (CO)	446	822	1022
Salem	542	1102	
Sexton Summit (CO)	632	1520	
Troutdale (CO)	547	1114	
PENNSYLVANIA			
Allentown	667	1109	
Curwensville (CO)	925	1734	
Erie (CO)	759	1119	1185
Harrisburg	646	1041	1025
Park Place (CO)	766	1425	
Philadelphia (CO)	509	760	817
Philadelphia	536	817	
Pittsburgh (CO)	730	1016	1028
Pittsburgh	802	1150	1126
Reading (CO)	573	910	982
Scranton (CO)	668	1151	1262
Williamsport	717	1221	1188
RHODE ISLAND			
Block Island (CO)	483	867	1009
Providence (CO)	512	950	1149
Providence	560	1053	
SOUTH CAROLINA			
Charleston (CO)	330	335	273
Charleston	377	402	
Columbia (CO)	418	462	428
Columbia	455	512	
Florence (CO)	423	490	
Greenville	533	605	551
Spartanburg (CO)	537	616	
SOUTH DAKOTA			
Huron	1117	1714	1653
Pierre	965	1465	1476
Rapid City	981	1637	1572
Sioux Falls	1073	1628	
TENNESSEE			
Bristol	735	935	
Chattanooga (CO)	549	575	
Chattanooga	604	672	595
Knoxville	650	747	707
Memphis	558	614	527
Nashville	676	764	659
TEXAS			
Abilene	352	361	438
Amarillo	565	656	814
Austin	219	219	260
Big Spring	334	337	
Brownsville	90	90	73
Corpus Christi	111	111	113
Dallas	347	352	369
Del Rio (CO)	194	194	240
El Paso	323	323	460
Ft. Worth	338	341	369
Galveston (CO)	135	135	137
Galveston	142	142	
Houston (CO)	171	171	
Laredo (CO)	106	106	
Lubbock (CO)	496	547	
Palestine (CO)	289	291	332
Port Arthur (CO)	190	190	205
Port Arthur	244	244	
San Angelo	296	304	
San Antonio	224	224	203
Victoria (CO)	149	149	
Wichita Falls	436	448	
Waco	296	297	
UTAH			
Milford (CO)	681	1104	
Salt Lake City (CO)	645	938	1162
Salt Lake City	697	1060	1297
VERMONT			
Burlington	736	1521	1683
VIRGINIA			
Cape Henry (CO)	431	495	530
Lynchburg	613	842	791
Norfolk (CO)	412	485	530
Norfolk	468	569	
Richmond (CO)	519	692	710
Richmond	538	736	
Roanoke	653	886	
Urbanna (CO)	492	662	
WASHINGTON			
Ellensburg	890	1663	
Kelso (CO)	588	1341	
North Head (CO)	516	1641	1576
Olympia	638	1491	
Port Angeles (CO)	599	1902	
Seattle (CO)	541	1100	1225
Seattle	635	1448	
Spokane	857	1599	1538
Stampede Pass (CO)			
Stevenson (CO)	615	1175	
Tacoma (CO)	575	1264	
Tatoosh Island (CO)	582	1969	1876
Walla Walla (CO)	645	1056	1082
Yakima	774	1439	1322
WEST VIRGINIA			
Elkins	833	1352	1278
Huntington	667	811	
Parkersburg (CO)	741	988	963
Petersburg (CO)	695	1087	
Charleston	700	901	
WISCONSIN			
Green Bay (CO)	1053	1881	1617
La Crosse (CO)	979	1389	1504
La Crosse	1050	1614	
Madison (CO)	985	1463	1482
Madison	1018	1540	
Milwaukee (CO)	928	1375	1351
Milwaukee	964	1480	
WYOMING			
Casper	931	1694	
Cheyenne	889	1722	1800
Lander	1019	1854	1979
Rock Springs (CO)	879	1664	
Rock Springs	946	1831	
Sheridan	997	1774	
ALASKA			
Anchorage	1584	3507	
Annette Island	929	2395	
Barrow (CO)	1485	5384	
Bethel	1421	3477	
Cordova	1305	3384	
Fairbanks	2134	4201	
Galena	1794	3816	
Gambell (CO)	1071	3922	
Juneau	1270	3113	
Kotzebue	1524	3774	
McGrath	1847	3907	
Nome	1071	3419	
Northway	2380	4727	
St. Paul	927	3449	
Yakutat	1147	3126	
Umiat (CO)	1652	4806	
Wales (CO)	1169	3813	
*LATE REPORTS RECEIVED			
**Houston	193	193	188

Data from airport unless otherwise specified. CO indicates data from city office.

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Red Boiling Springs, Tenn.	2	12 noon-7 p.m.					$2,000	$2,000	Electrical	Barn ignited by a bolt of lightning and destroyed by fire. Considerable tobacco and 450 bales of hay lost.
Port Neches, Jefferson County, Texas	3	A.m.					4,000		Wind	Line squall damaged power poles and trees; unroofed a section of Veterans of Foreign Wars' clubhouse; damaged an air-conditioning tower.
Glen Rock-Jefferson-Seven Valleys area, Pa.	4	Morning					*Thousands of dollars	*	Wind and rain	Winds lasted only a few minutes, but demolished a one-room brick and frame school building, unroofed a farmhouse, toppled outbuildings, smashed fences, and damaged fruit trees, with heavy rains causing further water damage. Storm occurred before schoo began, thus avoiding possible loss of lives.
Lancaster and Berks Counties, Pa.	4	5:45-6:30 p.m.	100	8	0	1	*300,000	*	Tornado, winds, thunderstorms	Spotty hit-shipping of tornado from Neighborville-Reamstown area northeastward through Adamstown, then brief reappearance about Tuckerton. Major damage in and around Adamstown. One woman in Adamstown carried 30 feet through the air with por tions of a building, escaping with only cuts and bruises. At least 14 buildings damaged by tornado with one house and two barns being completely demolished; others had walls blown out or roofs ripp off. Several cornfields flattened by high winds. At Tuckerton, twister reported to have shaken a st house, ripped off part of barn roof, and blew over chicken house, and turkey pen. High winds did muc damage to trees, and flying debris tangled and in some cases cut power and phone lines. Building an electrical supplies damaged by water from broken pipes, when two warehouses were shifted and nearly collapsed.
North Dakota, entire State	5 and 8						10,000	500	Winds	Winds of 40 to 50 m.p.h. occurred throughout State on 5th, and mostly in eastern portion on 8th, with gusts to over 60 m.p.h. Widely-scattered reports damage received. A pick-up truck and trailer over turned by gust of wind; driver unhurt. A car stan ing in a farm yard was blown forward several hundr feet to run into a threshing machine, causing dama to both. A large plate glass window in a store bl in. Several buildings damaged, and one large hip-roof barn, used as machine shed, blown over. Tops o many hay stacks blown off, and one farmer in Slope County reported 10 tons of hay blown off his farm.
Los Angeles area, Calif.	9-11						See remarks	See remarks	Winds and fire	Large wind breaks forced down; losses to citrus fru and avocados; some citrus trees defoliated; some d age to roofs, structures, antennae, etc. Incomple estimates of losses given at over $300,000 with greatest portion sustained by crops.
Superior, Ariz.	10	8:25-8:30 a.m.	†3	5			15,000		Wind	Extensive damage to roofs, windows, trees, and shrub At least 50 roofs damaged by high winds which reac speeds of 81 m.p.h.
Casa Grande (vicinity of), Ariz.	10	Afternoon			1				Wind and dust	High winds and dust storm restricted visibility to point where traffic in Casa Grande area was halted A head-on collision in dust storm resulted in the fatality.
Michigan, the northwestern Lower Peninsula near Lake Michigan	11	A.m.			13		10,000		Snow	Deaths caused by slippery and snow-filled roads. Hazardous condition existed to 14th.
Erie County, Pa.	11-12	1:48 a.m.-7:38 p.m., 11th; 3:10-8:16 a.m., 12th					3,000		do	Heavy snow along Lake Erie with total fall of 10.4 inches at Weather Bureau Office, Erie, shading to barely enough to cover ground 20 to 30 miles south of Lake Erie. Property damage from numerous traff accidents in area.
Walla Walla (city and valley area), Wash.	15-16	7 p.m. 15th-5 a.m. 16th	†3	25		1	190,000	1,000	Wind	A general storm, which brought heavy rains to weste Washington and moderately high winds to much of St developed severely damaging winds at Walla Walla a its adjacent valley area. Southeast winds reached destructive speeds in that city before 9 p.m. of 1 at which time greater part of community was withou light, power, or telephone services. High winds c tinued until about 5 a.m. of 16th, with extreme sp of 49 m.p.h. from southeast after midnight. Princ damage to property, resulting in a great measure t electrical and communication lines being disrupted great numbers of trees that were blown down. In a tion, considerable damage to roofs, chimneys, plat glass windows, and to automobiles and airplanes pa on runways. About $1,000 damage to wheat in storag Lineman for power company severely injured by flyi debris.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Pahala and Kau district, Hawaii	15-16						See remarks	See remarks	Rains	Extensive damage to plantation fields and roads.
Kainaliu and north Kona district (western portion), Hawaii	16	Late evening and night							Thunderstorm and rain	Telephone and electrical services interrupted. Mud and rocks washed down from hills into streets of Kainaliu. Rainfall of 4 to 8 inches in area within 24-hour period.
Douglas County, Wis.	16	Night					$5,000		Ice storm (glaze) and snow	Power and telephone lines damaged, and services disrupted by freezing rain and snow.
Michigan	16				2		15,000		Snow, wind, and ice (glaze)	Storm struck northwestern Upper Michigan most severely. High winds and ice tore down utility lines in Keweenaw Peninsula. Property damage by winds scattered elsewhere. Damage by ice, $10,000; by wind, $5,000. Two drownings occurred in Saginaw Bay due to high winds.
Central Valley and other central portions, Calif.	17-21								Rains and floods	Heavy rains resulted in crop and property damages in many districts throughout northern and central portions of State.
Naalehu and vicinity, Hawaii	19	Afternoon							Rain	Rocks and boulders carried down from mountain area above Naalehu into streets. Highway traffic stalled. Rainfall at low elevations in Naalehu area 2 to 4 inches, said to have fallen "within short time".
Bremen, Ky.	20	2:20-3:20 a.m.			0	0	100,000		Tornado	Damage to high school alone estimated at $80,000.
Paducah, Ky.	20	12:30-6:30 a.m.					3,500		Wind, rain, and electrical	All damage was to property. Utilities interrupted.
Hopkins County, Ky.	20	2-3 a.m.					*200,000	*	do	Storm moved northeastward. Heaviest damage in Earlington. Property destroyed, trees uprooted, crops damaged, and utilities interrupted.
Scott County, Ky.	20	4 a.m.			0	0	225,000	$75,000	Tornado	Storm moved northeastward. Hardest hit was section east of Georgetown. Numerous barns containing crops destroyed and damaged. Homes damaged. Livestock killed, and crops destroyed.
Noxpater (near), Winston County, Miss.	20	8 a.m.	100	5	0	2	15,000		Tornado	Damages include one home, and 3 outbuildings destroyed and several homes and outbuildings damaged; also includes $240 in cash lost from the destroyed home.
Baltimore, Md.	20	P.m.			1	6			Wind and rain	Winds and rain caused power shutoffs in two sections of city. Trees felled, and signs blown over. Six persons injured in three separate accidents, with minor injuries to all. An 18-year old youth killed when a bus skidded and jumped a curb.
Everett, Mass.	20	11 a.m.-6 p.m.			1	3	100,000		Southwest gale and rain	Wind and rain lashed New England; afternoon winds attained whole gale force, with peak gust of 55 m.p.h. Many trees uprooted; plate glass windows blown in; 27,000 telephones (17,000 in Mass. alone) out of commission; wind toppled a brick wall under construction in Everett, Mass., killing a workman and injuring another. Storm continued until late afternoon of 21st, followed by freezing that brought dangerous driving conditions; many skidding accidents.
Wisconsin	22-23				8				Snow	Deaths caused by traffic accidents on slippery highways.
Tennessee, middle and eastern portions, especially at Nashville and Knoxville	23-24	8 p.m.23d-1 p.m.24th							Snow	Snowy, icy roads resulted in numerous auto accidents and tie-ups. Snow depth ranged from 2 1/2 to 9 inches. Scattered losses due to freezing in homes, and of autos and other mechanical equipment.
Kentucky	23-28				15				Cold wave and snow	All deaths attributable directly or indirectly to weather. Most roads closed. Schools forced to suspend activities. Many businesses interrupted. Reported to be an unprecedented November snowfall in many areas. Sudden temperature drop during period is believed to have damaged much of the 1951 peach crop in Henderson County.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Lynchburg, Va.	24	8 p.m.							Electrical	Lightning put two transformer banks out of service, leaving portions of city in darkness for varying periods of time; also struck towers of radio station WLVA and damaged transmitters.
Ottobine, Rockingham County, Va.	24	9 p.m.					*$9,000	*	do	Lightning fired and destroyed a large implement building and a corn crib.
North Carolina, mountain counties and northwestern Piedmont	24-25								Snow and drifting snow	This was the southern edge of storm that lashed the northeastern States. From 2 to 5 inches of snow fell in this area of North Carolina. Hazardous road conditions caused by ice and packed snow resulted in numerous minor accidents. Mountain roads blocked by drifts in several sections. Drifts 6 feet deep in Watauga County. Several counties forced to close schools.
Great Valley of Virginia	24-26								Snow and ice	Heavy snow and icy roads caused closing of schools in Roanoke, Floyd, Botetourt, Craig, Montgomery, and Bath Counties. Truck line operations halted or badly slowed. Passenger cars stalled for many hours; many road accidents.
West Virginia (all but extreme northeastern part)	24-27				15		1,082,600	$359,700	Snow	Shortly after midnight on November 24, snow began falling. By morning of 25th, snowfall amounts on ground were from 10 to 15 inches at various places. By evening of 25th, about 5 to 6 inches or more of snow had fallen throughout area and wind was rising. Heavy snow, blowing snow, and high winds, continued during night of 25th-26th. Wind continued, but snow accumulation grew less during day of 26th, becoming negligible during night of 26th-27th. Reports indicate 2 deaths were due to freezing, 2 while operating snow removal equipment, and 11 from heart attacks while shoveling snow. Most costly feature was loss of wages and business. Farmers' greatest loss was in undeliverable milk. Damage to buildings, especially roofs and downspouts, was considerable in Monongalia, Marshall and Ohio Counties.
New Jersey, entire State	25	12 midnight-3 p.m.	†200		32		30,000,000		Cyclonic disturbance	Storm considered the most severe on record for the section. Damage estimated far in excess of 1944 hurricane. Center of low pressure was west of New Jersey moving from a position near Baltimore, Md., to near Harrisburg, Pa., during time of strongest winds. Fastest recorded mile at Trenton was 64 m.p.h., but various sections of the State reported in excess of 85 to 90 m.p.h. Power not fully restored until about a week after st
New York, entire State	25	All day			32	Hundreds	15,000,000		Wind and rain	A storm of near hurricane proportion brought winds o gale force to most of State. Some peak gusts repor as follow: New York International Airport, 94 mile Utica, 91 miles; Syracuse, 90 miles; Albany, 83 mil New York City, 76 miles; Binghamton, 70 miles. Tre blown down, buildings unroofed and smashed, automob crushed, electric and telephone services disrupted with thousands of subscribers cut off. Wind driven water inundated coastal sections, forcing abandonme of homes. Heavy rain caused serious flash floods i Catskill area, and flooding reported in the Genesse Valley and other scattered sections.
South Carolina	25-26	1 a.m. 25th - noon 26th			7		See remarks	See remarks	Cold wave, winds, and freeze	A severe cold wave, which broke all records for Nove low temperatures, was ushered in by strong winds wh caused minor damage. Severe damage to truck crops late vegetables; also, to tender young grain. A co siderable number of water pipes and radiators burst from freezing. Crop damage, however, offset by advantages to next year's agriculture from insect des struction by the freeze. Total damage high but undetermined. Seven fatalities from exposure or from accidents caused directly by severity of the weathe
New England, entire section	25-26	2 a.m., 25th-12:10 a.m. 26th			9	12	15,000,000		East and east-southeast gales, rain, and storm tides	Coastal highways, sea-walls, cottages, small craft, and several large vessels suffered great damage, no only on east coast but to an even greater extent on New England's southern coast, as sustained whole ga veered slowly from east through southeast and south thereby becoming directly onshore everywhere at som time, and this during time of spring tides. Gusts hurricane velocity were by no means confined to the coast, but lashed all of southern and western New England; slightly less violent in central and north Maine. Excessive rains were also common to all New England States, exceeding 2 inches during night of 25th-26th; storm totals were as much as 4 to over 6

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
										inches in 3 days. Overflowing rivers inundated residential areas in western parts of New England; hundreds of families evacuated; countless cellars and warehouse flooded from storm tides or backed-up drainage systems; rivers rose rapidly, and flash floods occurred in many smaller streams, but principal rivers crested inland and passed to sea with but moderate damage, except to flooded lowlands. Marine casualties not confined to open coast. The 110-foot Boston Floating Lifeboat Station sank at its dock in protected waters of Dorchester Bay, the nine Coast Guardsmen aboard, who had been asleep, just managing to scramble ashore. Power, light and telephone blackouts affected nearly all communities at some time; more than 100,000 telephones were out. In Massachusetts and Connecticut damage estimated at $5,000,000 each; other New England States, $1,000,000 to $2,000,000. In Maine fishing and boat gear losses over $1,350,000; total damage for State, $2,000,000. In New Hampshire, greatest single loss caused by unroofing of large wholesale drug warehouse, the $500,000 building and contents rain-soaked. In Vermont, Middleburg College suffered $150,000 damage by unroofing; 350 of the 800 utility poles downed in New England were in Vermont; flood or roof damage common to all communities; in Rutland alone damage estimated at $1,000,000; railroad station partly destroyed. On 28th all New England except a small part of Connecticut, was declared a "Disaster Area" by the Reconstruction Finance Corporation, empowering fishermen, lobstermen, and others who lost most of their equipment to obtain loans for rehabilitation. Of the 22 week-end fatalities, nine are attributable to weather causation, directly. Hundreds of minor accidents, other than the 12 reported as serious injuries.
Ohio, entire State	25-26	Afternoon of 25th-morning of 26th			8		See remarks	See remarks	Blizzard	Heavy, drifting snow with depths ranging from only 6 inches in some localities in extreme western part of State to about 3 feet in Steubenville area. Deaths directly or indirectly caused by storm. Traffic at a standstill over central and eastern counties and many people marooned on highways. Many schools, factories, and stores closed for several days following the storm. In Steubenville area, considerable damage due to roofs collapsing under heavy weight of snow; portion of roof of Court House gave way. Probably some damage to corn still in fields.
Indiana, South Bend area	25-26	Late 25th-early 26th			9		$5,000		Ice storm (glaze), snow, and sleet	Freezing rain, sleet, and snow created hazardous driving conditions, contributing factor in numerous accidents and injuries, electrical power failures, etc. One pedestrian died as result of a fall on icy streets at South Bend, and 7 or 8 other deaths in State were indirectly caused by the weather.
Maryland and Delaware	25-26	All day			4	14	1,000,000		Wind, floods, and electrical	Much damage throughout State not known. At least 10 vessels in harbor at Baltimore ripped from their moorings. Two derrick rigs blown into Bay. One barge sunk off Sandy Point. The steel framework in a construction project in Park Heights twisted down. Streets near harbor in Baltimore covered with as much as 2 feet of water. Highways and streets throughout State flooded, some of them closed to traffic. White Haven, a small town near Salisbury, Md., was knee deep in water. Millers Island was 4 inches under water on 25th, and on 26th was covered so that the 400 residents were forced to evacuate. Many highways blocked by falling trees and telephone and power wires. Estimated that 1800 telephones were out of order on Eastern Shore and 3400 in western Maryland. Garrett County, Md. had a snowfall of 20 inches. High winds in Hagerstown reported at least a dozen homes unroofed. Strong winds crashed a 10-foot by 19-foot show window in furniture store in Baltimore. Traffic between Baltimore and Washington virtually to a standstill. Police requested all bus travel to stop on night of 25th. On the Washington Boulevard at least 10 cars were involved in 1 accident, although no one was hurt seriously. Two sailors killed in an automobile accident on Eastern Shore and two others injured. One man drowned in a flooding stream near his home in Washington County, Md. Another man killed in a truck accident. Lightning blamed for partial destruction of a $500,000 power distribution station at Bethesda, Md.
Fond du Lac (near), Wis.	26	Night			2				Snow	Deaths caused by traffic accidents on slippery highways.
Walpole, N.H.	28	1 to 3 p.m.			1				Electrical	Man, repairing a roof, was struck by lightning and killed.

See footnotes at end of table.

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Philadelphia, Pa.	24-26				3	16	$800,000		Winds of near hurricane force, rain, abnormal tides, and flooding	Utilities alone estimated damage at $700,000. Six hundred families evacuated from low sections. Delaware tide was only 0.2 foot below highest of record set Aug. 23, 1933. B.&O. Railroad Station flooded. Only one railroad operated to New York City, others had tracks flooded. Downtown streets littered with glass from more than 1,000 shattered show windows. One sewage disposal plant stopped operating when engulfed with 12 feet of floodwater. Media pumping station also flooded. Fallen trees disrupted power lines (2,000) and phone circuits (20,000), and furthe blocked streets already covered with broken glass, u set rubbish containers, and other debris. Fallen tr damaged homes and autos. Philadelphia Electric Co. s it was the worst disruption in their history. Dozens of roofs and smokestacks blown off and hundreds more damaged. Water front streets, homes, and businesses flooded with several feet of water. Ferry service cancelled. Two planes damaged.
Chester and Delaware Counties, Pa.	24-26				2	12	500,000		do	Damage from wind, rain, and flood in Eyre Park section $150,000; Lester-Darby section $150,000; Lenni-Upland section $100,000; other sections $100,000. Two hundred families evacuated from lowlands. Auto and driver blown into river, driver rescued 5 hours later from tree. Chester Hospital without heat for 11 hour Chester ferries cancelled. Plane smashed by wind. A least 12 houses lost roofs, with rain causing further interior damage. Dozens of homes and buildings suffered minor wind damage. Power and phone service disrupted by falling trees and wind-carried litter. Some highways flooded, and others blocked by fallen trees, wires, and other debris. Grandstand unroofed at Devo Chester tide equalled highest of record.
Bucks and Montgomery Counties, Pa.	24-26				1	4	2,000,000		Winds of near hurricane force, rain, and flooding	Doylestown area estimated damage at $500,000. Not a basement or cellar remained dry. Low areas along streams flooded. Widespread wind damage to homes and businesses, with many places unroofed. One hundred tons of carrots, piled for shipment, blown away. Scho unroofed at Eddington, and interior and contents rain-damaged. Many power and phone lines downed. At Lansd 11 planes damaged, 4 beyond repair. Railroad safety gates torn loose by wind, with power, phone and caten wires downed. Diesel engines had to push electric engines through city. Pottstown area reported damage of $1,500,000 from flooding and wind damage to homes, dustries, utilities etc. Thirteen hundred telephones out of service. Power off a full day in some section due to broken lines.
Lehigh and Northampton Counties, Pa.	24-26				1	6	See remarks		do	Allentown-Bethlehem area reported flood damage to moto stocks, merchandise, etc., estimated at $30,000. Armo damage estimated at $10,000. At least 14 homes and scores of garages unroofed and many more suffered min or partial wind damage. One street caved-in; a facto wall and roof collapsed; 1,000 phones out of order. At Portland wall and roof of church blown down. Stre and roads blocked by fallen trees and broken wires. Many farm properties damaged by winds which reached 88 m.p.h. in gusts at Allentown-Bethlehem-Easton Airp Twenty-three persons made homeless in Allentown-Bethlehem area. Lehigh River rose 13 feet in 24 hours at Bethlehem.
Berks and Schuylkill Counties, Pa.	24-26					3	See remarks		do	Pennsylvania Power and Light Company reported Schuylki County hardest hit of any of their service area, and Metropolitan Edison Company in Berks County said prac tically every line of theirs was affected at one time or another by this storm. Hundreds of homes and busi nesses had roofs damaged or blown away, and several h concrete block walls completely flattened by force of wind. One hundred mink freed when their pens were bl over. A locomotive shop in Reading suffered $35,000 damage to its roof. Highways blocked by fallen trees wires, and other debris including several areas of flooding from swollen streams and at least one land-slide. Seventy-five families evacuated from lowlands around Reading to escape flood waters. In Tamaqua section basements flooded, especially in business district where Christmas stocks were damaged or ruine A roller-coaster was blown over. Water seepage follo by mine settlements damaged 22 homes, some streets, and water and gas lines. Park Place, Tamaqua and Pot ville recorded over 6 inches of rain in 2 days.

See footnotes at end of table.

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Carbon, Monroe, Pike, Wayne, Susquehanna, Wyoming, Lackawanna, and Luzerne Counties, Pa.	24-28				1		See remarks		Winds of near hurricane force, rain, and flooding	One person killed when tractor overturned into swollen creek. Wind gusts up to 88 m.p.h. at Pimple Hill, caused widespread damage to homes, farm buildings, businesses, and forests. Hundreds of roofs damaged, with nearly 100 being unroofed or completely flattened. In Strousburg area roofs and buildings blown onto railroad tracks and highways, with trees and poles criss-crossed on roads, and some roads flooded. At Mt. Pocono 7 planes damaged to extent of $6,000, 1 hangar collapsed, and a second damaged. Luzerne and Carbon Counties had 23,000 users without power. Five small bridges washed out in Luzerne and Lackawanna Counties by swollen streams. Memorial Stadium in Scranton badly damaged when section of its brick wall blew in. A coal breaker unroofed near Hazelton, and the Altamont Hotel suffered $10,000 damage from storm. Nearly 5 inches of snow in Poconos added to storm trouble on 28th. High winds tore down radio tower of Federal-State Flood Forecast Service just south of Scranton, cutting off reports from that area. One known landslide occurred near Wilkes-Barre following heavy rain. Much water damage to unroofed buildings; 1,000 cellars flooded in Scranton area.
Lancaster, York, Adams, Franklin, Cumberland, Perry, Dauphin, and Lebanon Counties, Pa.	24-26				1	4	See remarks		Winds, rain, flooding and electrical	One death from drowning in flood waters near Amity Hall. At least 100 roofs damaged, with some blown completely off. Scores of windows, trees, and power lines damaged by high winds. About 3,800 phones out of service in Harrisburg area. High water forced evacuation of 30 families near Middletown, and another 30 families at Newport. Middletown's water supply was cut in half when artesian well pumps were flooded. York Haven Hydro-plant was forced to shut down due to high water. Lowlands and highways flooded. A railroad washout occurred near York. An 11-room house burned to the ground after being struck by lightning near York. Amity Hall isolated by flood waters. Newport schools closed due to flooded highways. Franklin County appeared to be western edge of extensive wind damage.
Columbia, Montour, Northumberland, Snyder, Union, Lycoming, Clinton, Centre, Mifflin, Juniata and Huntingdon Counties, Pa.	24-26				1	1	See remarks		Winds of near hurricane force, rain, and flooding	One lineman killed while doing repair work near Selinsgrove. Strong to gale force winds reached 77 m.p.h. at Williamsport Airport and damaged roofs on homes, barns, and businesses (at least 100), many being completely unroofed. Thousands of trees blown down, with tangled power and phone lines adding to the litter-blocked highways. Several airports suffered wind damage to planes and hangars. At Lock Haven Airport 100 planes in hangars and on the field damaged by flood waters. Northumberland County had at least 4 miles of snow fences blown over. Lewistown received much wind damage, followed by flooding which required evacuation of 350 families. Mifflin County damage estimated at $1,500,000. Sunbury and that part of Williamsport behind flood walls reported only a few instances of temporary water in basements. Red Cross aided 200 people in South Williamsport. Five persons rescued from cars caught in rising flood waters. One-fifth of Renovo inundated; 70 families evacuated. This was the third worst flood of record at Renovo and Lock Haven. Lock Haven was 78 percent flooded with 5 feet of water on the railroad tracks, up to 4 feet of water on first floors in business section, and at least 300 persons displaced. Metal barrels carried away by flood waters found as far south as Harrisburg. Axe Factory Dam burst under pressure of flood waters, adding to their rapid rise. Nearly 500 families evacuated in Lewisburg-Milton area. At least one rock-slide occurred from saturating effect of heavy rains. A Williamsport poultryman suffered a $20,000 loss when 8,000 chickens and 1100 turkeys drowned.
Sullivan, Bradford, Tioga, Potter, and Cameron Counties, Pa.	24-28				2		See remarks		Gale winds, rain, spotty and heavy snow, and spotty flooding	Winds damaged hundreds of trees in Sullivan County which in turn disrupted power and phone services to 1,100 farmers there. One death at Monroeton when auto hit "live" power line. Bradford County had 3 rural bridges washed out, and Lehigh Railroad has 200 yards of roadbed washed away leaving tracks suspended near Towanda. Northern Pennsylvania Power Company estimated its damage at $100,000. A 3-story department store had its roof blown off, and the following heavy rain damaged everything in the store. Water from rain was so deep on floors, holes had to be drilled to remove weight of water by letting it flow into the basement. Three other stores partly unroofed, and one home burned after chimney was blown off ($10,000 loss). Three hangars and 8 planes damaged at airport. In Tioga County, gale east winds damaged homes, barns, trees, and power and phone lines. Flooding was cut short though by severe cold which created icy hazards. Coudersport suffered

See footnotes at end of table.

SEVERE STORMS

(RECEIVED TOO LATE TO BE PLACED IN CHRONOLIGICAL ORDER)

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
										from flooding which broke water mains and then following severe cold froze water which had seeped into gas mains, cutting off gas supply. One woman drowned in flood waters. A footbridge carried away, also a corner of a garage ($4,000 loss). Tioga and Potter Counties marked eastward edge of heavy snows which further hampered this storm-battered section.
Fulton, Bedford, Blair, Cambria, Clearfield, Jefferson, Elk, and McKean Counties, Pa.	24-28				12		See remarks		Snow, sleet, and glaze	Nine deaths in Altoona section from heart attacks and 1 from auto crash. Blair County alone had 134,000 persons without power from 24th through 28th. This area was in an unusual zone with weather alternating between snow, sleet, and freezing rain during this period. Madera reported 8 inches of sleet and 7.5 inches of snow with water equivalent of 5.01 inches. Heavy glaze from Fulton to Elk and Jefferson Counties ruined thousands of trees, damaged thousands more, completely disrupted power and phone services, and paralyzed traffic. Estimated damages for Elk, Clearfield, and Jefferson Counties only were $3,100,000, with freezing rain causing 80 percent, snow 10 percent, and sleet 10 percent. Lowlands in Elk and McKean Counties flooded by heavy rains and swollen streams. Forty families evacuated in Ridgway, and 31 persons evacuated in St. Mary's. Bradford reported 12 to 16 inches of water in lower streets, but a 23° drop in temperature in 70 minutes cut off runoff and halted rising of streams, then created a severe ice hazard. At Johnsonburg, a landslide blocked one set of railroad tracks. At Kane a factory roof collapsed from weight of snow, sleet, and rain. Tyrone reported 4 feet of water in business district. Johnstown area reported 16 to 30 inches of snow, with bus and air traffic halted and trains running late. Schools closed as well as many mines, due to roads being closed by snow and additional drifting snow. Two deaths from over-exertion.
Western counties from Somerset, Fayette and Greene to Erie and Warren, Pa.	24-28				16		See remarks		Snow, spotty sleet, glaze, and flooding	Business, industry, and traffic paralyzed for 4 days as this area lay blanketed under heaviest snowstorm of record. Pittsburgh district reported 11 deaths attributed to storm. Two deaths from carbon monoxide poisoning occurred in a stalled car near Uniontown. One woman froze to death near Blairsville. One died in plane crash near Meadville. One man was hit by a train and killed in Erie. Hundreds of cars abandoned when stalled by drifting snow, as their occupants sought shelter where they could. Pennsylvania Turnpike closed to traffic in this section, finally reopening evening of 27th. Scores of roofs damaged from weight of snow, with $50,000 damage from this cause in Farrell-Sharon area. Food supplies such as bread and milk limited but generally available. Some rural roads still snowbound on 30th. National Guardsmen were used in Pittsburgh to detour traffic so that snow removal operations could be carried on more efficiently. Many sections reported waist-deep snow. Railroad main lines able to keep operating but were hours behind schedule. Spotty sleet mixed wuth heavy snow added to weight and hazard. In Erie section, freezing rain fell for a while followed by severe cold, making an icy crust everywhere and further hampering that area. Flood damage in Pittsburgh River District estimated at under $200,000, but damages from crippling effect of heavy snow to property, business, and commerce are beyond estimate.

PRELIMINARY TOTALS BY STORM TYPES FOR NOVEMBER 1950

Type	Deaths	Injuries	Damage
Tornado		3	$ 715,000
Wind	86	59	49,363,000
Electrical	1		564,000
Rain	8	23	16,986,000
Snow and Blizzard	81		1,817,800
Ice (glaze)	24		2,807,500
Fire			150,000
Total	200	85	$72,403,300

† Miles instead of yards.
* Crop and property damage.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS
NOVEMBER 1950

The most important flooding during November occurred in the Central Valleys of California and in western Nevada during the last half of the month where record to near record floods resulted. These floods were unusual for so early in the season and were caused by heavy rains intensified by the melting of snow in the Sierra Nevadas. Heavy monetary losses resulted from these severe floods. Extensive damage occurred to business property in Reno, Nev., and to agricultural interests in rural areas from the severe floods along the Truckee and Carson Rivers in Nevada.

Record to near record stages occurred in some streams along the North Atlantic Slope in eastern and central Pennsylvania and eastern New York from the heavy rain on the 25th and 26th. The flood along Chester Creek was reported to be the highest of record and the flood along Perkiomen Creek the highest in recent years. The Schuylkill reached its highest stage since 1902 at Fairmount Dam (Philadelphia, Pa.). Extensive flood damage occurred along the West Branch of the Susquehanna and the Juniata Rivers.

ATLANTIC SLOPE DRAINAGE.--Minor flooding occurred along practically all the rivers in Maine and along the Pemigewasset and tributaries above Plymouth in New Hampshire between the 26th and 28th from the heavy rain on the 25th and 26th. The headwater streams in New Hampshire rose rapidly as most of the rain occurred in a few hours. The rainfall in the Merrimack Basin above Concord, N.H., averaged 3 inches; it was not as heavy in the middle and lower reaches. The Pemigewasset and Bakers Rivers crested on the 26th; the Androscoggin at Lewiston and the Kennebec at Augusta, Me., crested on the 27th and the rivers in eastern Maine and the Merrimack at Manchester, N.H., on the 28th. Some minor damages resulted to railroads and highways in the flooded areas.

This same storm caused some lowland flooding along the Connecticut River in the Hartford, Conn., area and along small brooks and streams where the rainfall was the heaviest. The rainfall along the Connecticut ranged from 2.5 to 5 inches and averaged about 3 inches. Highways in low areas were inundated for a short period but no extensive damage resulted.

A minor flash flood occurred during the night of the 25th and 26th in the North Adams, Mass., area along small streams which flow through the city, due to heavy rain.

Light flooding resulted along the Lehigh River on the 26th from the heavy rain (3.9 inches) on the 25th. The only damage reported was in Allentown, Pa., where water entered some basements in the business district damaging supplies that were not moved.

Flood stages were reached on the Schuylkill River and tributaries from Reading, Pa., to its mouth, on the Delaware River near Easton, Pa., and along the Brandywine Creek on the 25th and 26th from the heavy rains on the 25th. The Perkiomen Creek reached one of its highest stages (16.48 feet) in recent years at Graters Ford, Pa. The Schuylkill at Fairmount Dam (Philadelphia, Pa.) reached a crest of 14.5 feet, 0.3 foot below the all time high gage reading of 14.8 feet in 1902. On Chester Creek the crest was reported to be one of the highest of record. Most of the damage along Perkiomen Creek was confined to flooded summer cottages and to inundated highways. Along the Schuylkill River quite a few manufacturing plants were forced to move materials and machinery from their basements. In Fairmount Park in Philadelphia, both East and West River Drives were closed for 36 hours. After the water receded, a large deposit of mud had to be removed. The Eyre Park section suffered the most damage along with the Chester Hospital. Slightly over 200 families were evacuated and some patients were moved from Chester Hospital due to flooding of the boiler room which forced the boilers out of operation from 4 p.m. of the 25th to 3 p.m. of the 26th. Upstream, most of the damage occurred at Lenni where the Yorkshire Worsted Mills reported 21 inches of water in the first floor of their plant. Material had been removed to the second floor so most of the damage was due to mud in machinery. One death was reported here when an elderly man died from overexertion.

The storm of the 24-25th resulted in moderate to severe flooding in the Susquehanna River basin and tributaries. Rainfall averaged about 4 inches in the headwaters of the Juniata and West Branch Susquehanna Rivers, with amounts locally in excess of 5 inches. The runoff from this rainfall was exceptionally high because of the 1 to 1-1/4 inch rains which fell just a few days earlier on the 20th and 21st. Floods developed in the West Branch Susquehanna River along the main stem from Renovo, Pa., to the mouth, and in Sinnemahoning Creek. No flooding occurred in the basin above Karthaus, Pa. In the Juniata River Basin, flooding occurred in the Frankstown Branch, and the entire main stem, but no flooding was reported from the Raystown Branch. In the Susquehanna River, light flooding occurred at Oneonta, N.Y., Towanda, Pa., and in the lower basin from Sunbury to Harrisburg, Pa. Crests at Renovo and Lock Haven on the West Branch, Susquehanna River, and at Huntingdon, Mapleton Depot, Lewistown and Newport in the Juniata River basin were the highest since the floods of March 1936. Preliminary reports of the U.S. Geological Survey indicate that the floods of March 1936 were exceeded on some small streams in the Juniata River basin. There is little doubt that crests in the West Branch and possibly the Juniata River would have reached or exceeded the record March 1936 floods if the latter portion of the precipitation had not turned to snow. The sudden drop in temperature to well below freezing during the afternoon of the 25th caused very sharp recessions of the hydrograph. Light flooding occurred along the Chemung River in New York but no damage was reported. Flood damage and inconvenience were extensive in the lowlands of the West Branch and Juniata Rivers. Among the towns reporting damages were Renovo, Lock Haven, Milton and Lewisburg, Pa.

Near bank-full stage (9.8 feet) was reached on the lower Potomac near Washington, D.C., towards the end of the month due to heavy precipitation (2 inches) in the early morning of the 25th. Strong southeasterly winds during the night of the 24th and on the 25th caused high tides in the Washington area on the 25th and 26th. The highest stage reported was 6.2 feet at high tide on the morning of the 25th which was the highest tidal stage since September 1945 when a stage of 6.7 feet was reached. This stage, however, was only 0.1 foot higher than the 6.1 foot stage reported in this area on Sept. 13, 1950.

OHIO BASIN.--Sharp rises occurred on the Allegheny River from the heavy precipitation on the 24th and 25th as far downstream as Warren, Pa., with flood stage being exceeded at Port Allegany, Pa., by almost 3 feet and at Olean, N.Y., by 6 feet. The

precipitation above Olean averaged 3 inches, with 2.5 inches of this amount falling as rain before the temperatures dropped to below freezing. The headwaters of the Clarion River experienced about 4.5 inches of precipitation of which about 1 inch accumulated as snow toward the end of the storm. Part of the runoff was impounded by the East Branch Dam, but flooding occurred at Johnsonburg and Ridgway from rains below the dam and at St. Marys on West Creek. Evacuation of about 100 families was required in these three places, work in plants temporarily disrupted, and streets and highways were under water. Flooding was not as severe as during the 1936 and 1942 floods.

Heavy rains over the Scioto (1.85 inches) and Green (2 inches) River Basins on the 19th and 20th caused a general rise with the Scioto reaching near or slightly above flood stage from the 20th to the 22d and the Green exceeding flood stage slightly on the 23d. Only minor damage resulted from the flooding.

Heavy rains (2 inches) on the 8th and 9th caused minor rises along the White and Wabash Rivers with some flooding at Edwardsport, Ind. No damage resulted. Heavy rains occurred again from the 19th to the 21st averaging about 1.75 inches over the headwaters of the White and Wabash Rivers and about 2.25 to 2.5 inches over the lower reaches of both streams. As a result of these rains, overflow occurred along the Wabash from the vicinity of Wabash to below Terre Haute and in the Mt. Carmel area on the lower Wabash. Overflow also occurred at Seymour on the East Fork of the White, on the West Fork of the White River, mainly from Spencer downstream, and along the main White at Petersburg and Hazelton, Ind. Most flooding of any consequence occurred along the middle or lower reaches of the streams. Damage was relatively light.

CENTRAL VALLEYS OF CALIFORNIA AND WESTERN NEVADA.--Record to near record floods occurred in the Central Valleys of California from the Yuba River south to the Kern River and in western Nevada during the early part of the last half of the month, due to heavy rains and snow melt.

During the 18th and 19th the rains in central California averaged over 5 inches with some stations reporting 48-hour amounts over 15 inches and several over 10 inches. Rains had been more or less continuous during the 10-day period from the 13th to the 22d and averaged over 11.5 inches over the Central Valley of California during that decade. No precipitation occurred in this area during the first 12 days of November. During the month of October, however, precipitation in excess of normal occurred at practically all stations in the Central Valley and in the mountain areas north of Tehachapi, Calif. By the end October, 5 inches of snow was on the ground in the Sierras above 6,000 feet. Stations in the Valley received as much as 200 to 300 percent of the monthly precipitation during October.

The stage was set for heavy rains over the area when a cold front associated with a deepening low pressure area moved across northern California on Nov. 16th from off Vancouver Island. This frontal system became stationary between central California and the Hawaiian Islands on the 17th, and several waves began to form on it. On the 18th the first of these waves moved inland across the Bay Region, just north of Sacramento and across the central Sierras. An average of 3 to 4.5 inches (8 to 10% of annual normal) fell on a wet snow pack averaging 20 to 30 inches in depth. Other waves on the stationary front continued to move inland over central California until a wedge of high pressure caused the front to dissipate on Nov. 22. The heavy rainfall on the 19th and 20th fell on watersheds largely depleted of snow and runoff began almost immediately with the peaks being quite sharp. In general the total amounts of rainfall during the period from the 16th to the 24th were highest opposite the coast range gap at San Francisco. Six-day totals ranged from 3 or 4 inches on the valley floor to as much as 25 inches in the Yuba and American Basins.

In the early morning hours of the 19th, all of the rivers flowing from the Sierras began to peak with crests close to or exceeding all previously recorded flood crests. The American River overflowed its banks in the vicinity of the H Street Bridge at Sacramento and a crest height of 44.03 feet, USED datum, was recorded at the bridge; the previous maximum was 43.4 feet. The highest stage at Folsom exceeded by 1 foot the previous record crest of 1893 on that gage. The Yuba River equaled its past record. The floods along the northern tributaries of the Sacramento were not record breaking as the heaviest rainfall was concentrated over the Central Sierra Nevadas. The flow in the main stream was insignificant and the Feather River crest was less than half the maximum of record. Rivers to the southward also crested with close to record heights.

The extensive rains that followed on the 20th resulted in all of the rivers from the Feather south to the Tuolumne peaking again, this time in channels already swollen by the previous storms. The American River at H Street rose to 45.75 feet. Levee systems from Marysville south were subjected to record or near record flood peaks, but breaks at only a few points were recorded. All 48 gates of the Sacramento Weir were opened early in the flood and in addition a maximum of 3.5 feet of water flowed over Fremont Weir for approximately 2 days. This water flowing into the Yolo Bypass resulted in the flooding of 3 tidal reclamation islands in the Bypass itself. On the Cosumnes and Mokelumne Rivers, a crest of 4.5 feet above the danger stage was reached at Bensons Ferry which resulted in at least 3 levee breaks in that area and the flooding of a considerable amount of land near Galt and Lodi. The water on the Stanislaus River overtopped the levees at numerous points for a distance of 6 miles upstream from San Joaquin River and submerged lands for a distance about 4 miles to the north and south of the river.

The floods in the San Joaquin Basin and in Tulare Lake Basin from the 18th to the 23d were the largest on record with discharges highest since the 1860's. The Kings River crested at an all-time high of approximately 102,000 c.f.s. or a stage of over 20 feet at Piedra, Calif. The Kings, Kaweah, Tule, Kern, Merced and Chowchilla Rivers and various sloughs flooded the vast area of lowlands adjacent to these water courses. Runoff records were broken in the Cosumnes, Mokelumne, and Stanislaus Rivers. These streams generally had two peaks; in the Tulare Lake Basin the streams experienced only a single peak.

Flood producing rainfalls in the coastal drainage were limited to the area between the San Francisco and Monterey Bays. The minor flooding that occurred in the lower reaches of the Guadalupe River was attributed to a combination of runoff from

uncontrolled tributaries and high tides. A major flood resulted along the lower reaches of Alameda Creek from a similar combination of conditions despite the fact that the existing reservoir in that basin completely controlled the runoff from its catchment area. In general, the flood of the 16th to the 24th was higher in the Alameda Creek District and areas to the south than in the other central coastal drainages. The peak of 12,500 c.f.s. on Alameda Creek in this flood was the highest since 1938. In that stream the flooding was materially aggravated by a debris jam at the railroad bridge near Alvarado. Minor flooding occurred on the lower reaches of San Lorenzo Creek, Alameda County, on Guadalupe River and on the upper reaches of the Pajaro River Basin in the vicinity of the confluence of Llagas and Carnadero Creeks with the Pajaro River in the area known as Felipe Lake. Although there was no flooding on San Francisquito Creek in Palo Alto, heavy rains resulted in considerable erosion damage throughout the city.

In comparing the storm of December 1937, which in general produced the greatest floods in recent times for which adequate data are available, with the storm of November 1950, it is noted that while the northern stations received less rain in the current storm, the more centrally located stations, such as Georgetown, received twice as much. Three-day amounts in the November 1950 storm also generally exceeded corresponding amounts in the 1937 storm. Toward the south (San Joaquin drainage) the storm rainfalls of the November 1950 and 1937 storms were approximately equal. A list of stations at which unprecedented November precipitation amounts were recorded is given in the following table at the end of this report.

Heavy damages resulted from the severe flooding in the Central Valleys of California. The preliminary estimate of total damage due to this flood in the Sacramento-San Joaquin River Basins is $17,000,000. Except for the flood plain of the American River and for the Tulare Lake Bed, which were damaged in the amounts of about $1,500,000 and $1,000,000, respectively, most of the streams which overflowed caused damages ranging from $100,000 to $700,000 in their respective flood basin. The damages were mainly to agricultural lands, but some damage was done to communication facilities, homes, and structures. An estimated total of 16,250 persons in the Central Valley were evacuated from their homes, the largest single area evacuated being from the Hammonton-Olivehurst section between the Yuba and Bear Rivers in which 8,000 persons were displaced. Large numbers of persons were also evacuated from suburban Sacramento. Thousands of turkeys were drowned in the Centerville district due to floods on the 19th. A total of 320,000 acres of land was inundated from the Yuba River to the Kern River. Between these two rivers most of the Sacramento and San Joaquin River tributaries which have their sources in the higher elevations of the Sierras, overflowed their respective bottom lands. Little flooding occurred from streams originating in the lower foothill areas. Although flooding along the high Sierra streams was general, by far the largest areas inundated were in the south San Joaquin Valley, particularly in the Kern, Tule, Kaweah, and Kings River Basins. Flood waters from these streams alone covered a total of 226,000 acres. Breaks occurred in levees of the Mokelumne River near Woodbridge, of the Kings River a few miles west of Kingsbury, of the Kaweah River near Lemon, and of the Kern River at Head of Callaway Canal. Several breaks occurred in south levees downstream from Bakersfield on Kern River but were quickly closed. The following communities or portions thereof were damaged by flood waters: Merced, Chowchilla, Centerville, Visalia, Porterville, Oildale, Isabella and Kernville.

In the coastal area between the San Francisco and Monterey Bays the damages were estimated at nearly one-half million dollars. The damages were mainly to agricultural lands, but some damage was done to urban districts and roads. An estimated total of 40 persons were evacuated from their homes in the Alvarado district on Alameda Creek. Reports from Mountain View indicated that, swollen by the heaviest rains in years, Permanente Creek overflowed its banks on the night of the 18th and sent muddy water rushing into Mountain View streets, causing considerable damage to merchandise in stores on El Camino Real. Considerable additional damage was done to orchard land along Miramonte Road as tons of precious topsoil were carried away. Muddy water invaded yards of many residents and in some instances poured into basements. A total of 10,700 acres of land were inundated of which 4,900 were on Alameda Creek, 5,300 on the Pajaro River, 300 on Guadalupe River and 200 on San Lorenzo Creek.

Floods in Western Nevada

The floods in western Nevada in the Walker, Carson and Truckee River Basins were the highest of record. The Truckee River crested at a stage of 13.8 feet at Reno, Nev., on the 21st. The maximum width of the flood in the downtown area was 4 blocks. The Carson River crested at a maximum stage of 11.5 feet near Carson City, Nev., on the 22d. There were two crests, the first, from the 18th to the 20th equaled the flood of December 1937 on some streams and the second from the 20th to the 22d exceeded the 1937 peak at several stations. The severe floods in western Nevada resulted from heavy precipitation together with considerable snow melt during the period from the 13th through the 21st. In the Lake Tahoe drainage, 14.5 inches of snow occurred at Marlette Lake (elevation 8,000 feet) from the 13th to the 16th with continuous rain thereafter through the 21st, during which period the daily temperatures ranged from 30-40 degrees. There was 12 inches of snow on the ground on the 16th which was completely depleted by the 19th. During the period, 4.17 inches of precipitation was recorded at Marlette Lake, Nevada. At Glenbrook (elevation 8,400 feet), also in the Lake Tahoe drainage area, 5.19 inches of precipitation occurred during the same period, all but 0.36 inch occurring as rain; 2.52 inches of rain occurred in the 24 hours ending at 4:30 p.m. on the 18th. Carson City, Nev., recorded 3.12 inches of rain in the 24 hours ending at 9 a.m. on the 19th, establishing a record for 24-hour precipitation. During the period, 6.20 inches of precipitation was reported at this point.

About 100 residences in the Reno area were flooded, many along the river bottom east of town with the most damage occurring in the business area. The property damage in Reno, Nev., alone was estimated at several million dollars. One life was known lost due to overexertion.

COLUMBIA BASIN.--Above normal precipitation which began in October continued in the Columbia Basin

through November. The heaviest general rainfall over northwest Oregon and southwest Washington occurred from the 15th to the 17th, with rather localized rains on other dates. It was heavier, for the most part, in headwater areas of the McKenzie, Santiam, and Yamhill Rivers than in other tributaries. Only minor flooding occurred in the Willamette River system except that stages were high in the McKenzie, Santiam and Yamhill Rivers. Crest stages in the Yamhill and Santiam exceeded those of October. The stage of 19.86 feet at Jefferson, Oreg., on the 2d was mostly the result of moderately heavy precipitation the last day of October and the 1st of November accompanied by some snow melt in the headwaters of the smaller tributary streams.

PUGET SOUND DRAINAGE.--Heavy rains from the 24th to 27th plus some snow melt caused minor flooding in streams in the Puget Sound drainage during that period. The rain was the heaviest on the 24th and ranged from 1 to 3 inches in some mountain areas. The old State Highway 15 between Monroe and Snohomish, Wash., was flooded to a depth of 2.5 to 3 feet near the junction of the Pilchuck and Snohomish Rivers. Several hundred acres of farm land was flooded in this general area. In the lower Skagit Valley several secondary roads were slightly under water. Water also spilled through a half completed dike between Conway and Milltown, Wash. Damage, however, from the overflows was negligible.

COMPARATIVE PRECIPITATION DATA--CALIFORNIA (CENTRAL VALLEYS)

Station	Drainage*	November 1950			For the Period of Record (All Novembers ending 1949)				
		Monthly Total	Greatest Daily Total	Years of Record	Greatest Monthly Amount	Year	Years of Record	Greatest Daily Amount	Year
Ash Mountain	1	6.13	3.19	25	7.62	1926	25	2.91	1946
Auberry	2	9.03	3.94	35	8.86	1926	34	4.24	1926
Auburn	3	13.92	3.76	79	15.24	1885	51	2.95	1926
Blue Canyon WB AP	4	26.75	8.66	51	23.31	1903	49	5.00	1909
Bowman Dam	4	23.89	6.58	67	31.27	1903	40	5.52	1946
Bullards Bar Power House	4	23.78	6.91	9	17.83	1942	9	6.37	1942
Calaveras Big Trees	5	19.66	6.70	10	12.57	1946	10	6.16	1946
Colfax	4	18.40	5.10	80	18.38	1903	52	5.02	1903
Crocker Station	6	14.51	4.00	18	17.43	1900	5	3.30	1949
Deer Creek Power House	4	26.04	7.37	43	21.80	1926	42	5.80	1930
Dobbins Colgate Forebay	4	16.50	5.45	46	14.18	1920	47	4.71	1912
Dudleys	7	17.56	8.41	41	12.77	1926	40	4.50	1926
Giant Forest	1	18.87	9.55	29	18.73	1926	29	5.97	1924
Grant Grove	8	14.51	6.12	10	11.85	1944	10	5.70	1949
Hetch Hetchy	6	14.66	6.74	39	11.06	1926	36	3.88	1946
Huntington Lake	2	13.65	5.29	35	10.21	1926	34	3.70	1946
Kernville	9	4.00	3.15	56	5.09	1900	48	1.84	1926
Lake Eleanor	6	18.62	7.50	40	12.28	1942	38	5.41	1942
Lake Spaulding	4	23.90	6.44	56	20.36	1903	52	5.92	1946
Mariposa	2	13.63	7.30	42	9.42	1926	42	4.00	1924
Meadow Lake	2	10.90	4.23	2	3.79	1949	2	2.91	1949
North Fork Ranger Station	2	14.37	8.67	46	10.00	1944	44	5.80	1946
Portola	4	7.25	1.94	35	6.71	1926	35	2.40	†1915
Salt Springs Power House	10	14.37	4.56	3	4.08	1949	3	2.01	1949
Soda Springs	4	21.14	5.35	80	13.60	1885	51	3.60	1922
Sonora	6	10.61	5.33	63	10.29	1900	43	4.90	1919
South Entrance Yosemite NP	7	17.33	6.63	9	13.60	1946	9	7.14	1942
Springville Tule Headworks Dam	1	20.50	10.27	48	9.19	1946	38	5.16	1924
Tahoe	11	13.75	4.56	41	10.61	1926	40	3.55	1944
Three Rivers	1	7.86	4.10	41	6.56	1926	40	2.31	1926
Tiger Creek Power House	10	19.93	6.94	43	15.84	1926	43	6.42	1942
Truckee Ranger Station	11	11.37	2.90	67	8.94	1875	38	3.12	1944
Twin Lakes	10	14.79	4.82	31	11.90	1926	30	3.90	1942
West Point 3 SW	10	13.81	5.43	56	13.20	1926	49	5.00	1942
Woodfords	12	8.06	3.90	18	9.11	1946	18	3.57	1946
Yosemite National Park	7	15.07	5.63	46	11.96	1926	45	3.37	1926

* 1 Kaweah, 2 San Joaquin, 3 American, 4 Feather, 5 Calaveras, 6 Tuolumne, 7 Merced, 8 Kings, 9 Kern, 10 Mokelumne, 11 Truckee, 12 Klamath.
† Also in 1946

FLOOD STAGE DATA

(All dates in November unless otherwise specified)

Table 5 NOVEMBER 1950

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE	Ft.			Ft.	
Bakers:					
Wentworth, N.H.	8	26	26	8.0	26
West Rumney, N.H.	7	26	26	9.4	26
Pemigewasset:					
Woodstock, N.H.	9	26	26	12.0	26
Plymouth, N.H.	11	26	27	15.1	26
Merrimack:					
Franklin Junction, N.H.	14	27	27	14.4	27
Manchester, N.H.	7	28	28	7.1	28
Connecticut: Hartford, Conn.	16	27	29	17.0	28
East Branch: Downsville, N.Y.	10	25	27	14.4	26
Lehigh:					
Lehighton, Pa.	9	25	26	12.3	25
Allentown, Pa.	14	25	26	17.0	26
Bethlehem, Pa.	16	25	26	16.5	26
Perkiomen Creek: Graters Ford, Pa.	8	25	26	16.5	25
Schuylkill:					
Reading, Pa.	13	25	26	16.8	26
Pottstown, Pa.	14	25	26	17.9	26
Norristown, Pa.	17	25	26	17.9	25
Philadelphia, Pa.	11.5	25	28	14.5	26
Brandywine Creek: Chadds Ford, Pa.	8	25	26	13.1	25
Delaware: Easton, Pa.	22	25	26	22.1	27
Chemung:					
Corning, N.Y.	16	26	26	18.0	26
Elmira, N.Y.	12	26	26	16.4	26
Chemung, N.Y.	12	26	27	18.7	26
Tunkhannock Creek: Dixon, Pa.	9	25	26	13.2	26
West Branch:					
Renovo, Pa.	16	25	26	22.0	26
Lock Haven, Pa.	21	25	26	27.5	26
Williamsport, Pa.	20	25	27	28.1	26
Frankstown Branch:					
Huntingdon, Pa.	12	25	26	15.6	25
Little Juniata: Spruce Creek, Pa.	7	25	25	15.8	25
Juniata:					
Mapleton Depot, Pa.	20	25	26	26.4	25
Lewistown, Pa.	27	25	26	32.0	26
Newport, Pa.	22	26	26	25.4	26
Susquehanna:					
Oneonta, N.Y.	12	26	26	15.2	26
Towanda, Pa.	16	26	27	18.0	27
Sunbury, Pa.	16	26	27	18.7	27
Harrisburg, Pa.	17	26	27	19.3	27
MISSISSIPPI SYSTEM Ohio Basin					
Allegheny:					
Port Allegany, Pa.	9	25	27	11.8	26
Olean, N.Y.	10	25	29	16.1	27
Paint Creek: Bourneville, Ohio	9	20	21	13.4	20
Scioto:					
Circleville, Ohio	14	22	22	14.3	22
Prospect, Ohio	11	21	21	11.0	21
Green: Lock No.4, Woodbury, Ky.	33	23	23	33.5	23
West Fork:					
Muncie, Ind.	--	--	--	6.0	21
Anderson, Ind.	10	21	22	11.7	21
Spencer, Ind.	--	--	--	16.3	22
Elliston, Ind.	18	21	25	21.6	23
Edwardsport, Ind.	12	10 21	12 28	13.5 18.8	10-11 23-25
East Fork:					
Columbus, Ind.	--	--	--	10.0	21
Seymour, Ind.	14	21	23	16.5	21
Bedford, Ind.	--	--	--	19.7	25

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM (Cont'd.) Ohio Basin (Cont'd.)	Ft.			Ft.	
White: Petersburg, Ind.	16	21	30	20.8	27
Wabash:					
Wabash, Ind.	12	21	23	15.7	21
La Fayette, Ind.	11	22	23	14.4	22
Covington, Ind.	16	23	24	16.9	24
Montezuma, Ind.	--	--	--	15.2	24
Terre Haute, Ind.	14	--	--	13.6	24,25
Mt. Carmel, Ill.	17	27	29	17.3	28
TULARE LAKE DRAINAGE					
Tule: Porterville, Calif.	7	18	21	16.5	19
Kings: Piedra, Calif.	10	18	20	21.0	19
PACIFIC SLOPE DRAINAGE San Joaquin Basin					
Mokelumne: Bensons Ferry, Calif.	12	20	24	15.4	22
Sacramento Basin					
American: Sacramento, Calif.	39	19 20	19 22	44.0 45.8	19 21
Sacramento:					
Knights Landing, Calif.	38	21	22	38.3	22
Sacramento, Calif.	29	21	21	30.2	21
Columbia Basin					
McKenzie:					
Leaburg, Oreg.	12	2 18	2 18	17.1 12.4	2 18
Coburg Bridge, Oreg.	11	2	2	12.6	2
Santiam: Jefferson, Oreg.	13	2 17	3 18	19.9 15.9	2 18
South Yamhill: Whiteson, Oreg.	38	17	19	39.4	18
Willamette:					
Harrisburg, Oreg.	12	2 18	3 19	14.9 15.1	2 18
Corvallis, Oreg.	20	19	19	20.2	19
Albany, Oreg.	20	19	20	20.5	19
Oregon City, Oreg.	12	19	21	12.7	20
PUGET SOUND					
Snoqualmie: Tolt, Wash.	51.5	24 26	24 26	52.8 51.9	24 26
Snohomish: Snohomish, Wash.	23.6	26	26	26.0	26
Skagit:					
Concrete, Wash.	26	26	27	29.2	26
Mt. Vernon, Wash.	22	26	26	22.5	26

* Provisional.

RADIOSONDE DATA

Average monthly values

Table 2C — NOVEMBER 1950

Standard pressure surface (mb)	ALBANY, N. Y. (1004 MB.)				ALBUQUERQUE, N. MEX. (840 MB.)				ATLANTA, GA. (983 MB.)				BIG SPRING, TEX. (928 MB.)				BISMARCK, N. DAK. (957 MB.)				BOISE, IDAHO (919 MB.)				BROWNSVILLE, TEX. (1018 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	86	4.6	80	30	1,620	10.1	30	30	307	7.7	69	30	784	11.3	39	30	505	- 5.3	74	30	868	5.0	77	30	6	18.0	73
1,000--	30	117			30	134			30	165			30	149			30	155			30	169			30	158	19.5	66
950----	30	538	4.7	66	30	580			30	596	9.3	56	30	588			30	565			30	597			30	602	16.8	67
900----	30	975	2.7	65	30	1,043			30	1,038	7.2	53	30	1,042	13.5	32	30	989	- 2.9	59	30	1,040	7.9	58	30	1,058	15.3	58
850----	30	1,436	0.9	66	30	1,519			30	1,507	5.9	45	30	1,522	12.9	27	30	1,441	- 3.9	52	30	1,509	5.6	54	30	1,542	14.3	49
800----	30	1,921	- 1.3	66	30	2,025	10.7	23	30	2,002	4.2	40	30	2,030	11.2	23	30	1,918	- 5.6	50	30	2,003	2.9	58	30	2,052	12.1	42
750----	29	2,441	- 3.5	56	30	2,569	7.3	26	30	2,535	2.1	40	30	2,575	8.2	25	30	2,429	- 7.7	49	30	2,531	- 0.0	54	30	2,598	9.7	37
700----	29	2,981	- 5.9	51	30	3,124	4.0	28	30	3,080	- 0.2	38	30	3,132	5.2		30	2,956	-10.4	47	30	3,072	- 3.2	53	30	3,160	6.5	35
650----	29	3,562	- 8.9	50	30	3,726	0.2	28	30	3,674	- 3.4	34	30	3,738	1.7		30	3,533	-13.8	47	30	3,660	- 6.7	55	30	3,770	3.2	29
600----	29	4,174	-12.4	46	30	4,359	- 3.5	26	30	4,298	- 6.7		30	4,373	- 2.5		30	4,127	-17.4	45	30	4,275	- 9.9	52	29	4,410	- 0.8	
550----	29	4,834	-16.3	43	30	5,046	- 7.1		30	4,973	-10.7		30	5,062	- 6.9		30	4,785	-21.3	44	30	4,948	-13.7	50	29	5,106	- 4.8	
500----	29	5,544	-21.0	42	30	5,778	-12.1		30	5,698	-15.7		30	5,794	-12.0		30	5,471	-26.0	46	30	5,661	-18.3	49	29	5,843	- 9.7	
450----	27	6,310	-26.9	42	30	6,580	-17.8		30	6,488	-21.2		30	6,595	-18.0		29	6,242	-30.7	46	29	6,448	-23.2	45	28	6,653	-15.4	
400----	26	7,159	-33.1		30	7,447	-24.5		30	7,343	-27.3		30	7,462	-24.8		29	7,058	-36.2	45	29	7,296	-28.7	43	28	7,528	-22.0	
350----	26	8,083	-39.7		30	8,404	-32.3		30	8,291	-34.1		30	8,418	-32.4		29	7,972	-42.3		28	8,236	-35.5		28	8,495	-29.4	
300----	26	9,122	-46.2		30	9,471	-41.3		29	9,352	-41.9		30	9,486	-40.9		29	8,999	-48.3		26	9,286	-43.3		27	9,576	-37.9	
250----	25	10,324	-52.5		29	10,682	-51.0		28	10,556	-50.6		29	10,700	-50.6		28	10,183	-53.3		26	10,489	-51.6		26	10,805	-47.3	
200----	24	11,741	-56.4		29	12,100	-61.0		25	11,992	-57.9		[illegible]	12,121	-60.1		27	11,614	-54.2		24	11,904	-58.7		24	12,242	-58.1	
175----	22	12,570	-56.9		28	12,920	-65.1		22	12,826	-60.3		25	12,945	-63.9		27	12,470	-54.2		24	12,738	-60.5		23	13,072	-63.1	
150----	20	13,546	-58.1		26	13,861	-67.0		22	13,782	-62.5		23	13,876	-66.9		24	13,448	-54.4		22	13,697	-60.4		21	14,004	-67.3	
125----	16	14,701	-58.8		25	14,949	-68.5		21	14,903	-64.8		20	14,966	-69.6		20	14,624	-55.1		20	14,812	-61.8		20	15,094	-69.8	
100----	12	16,104	-60.1		22	16,279	-70.4		17	16,262	-66.4		18	16,280	-70.7		13	16,033	-55.2		18	16,197	-62.3		19	16,414	-71.8	
80-----					17	17,615	-68.5		10	17,623	-67.3		15	17,607	-69.4		10	17,448	-56.7		13	17,574	-60.1		15	17,724	-71.5	
60-----					7	19,367	-64.0		6	19,389	-62.9		12	19,360	-64.6		9	19,253	-56.6		7	19,379	-59.9		8	19,435	-64.5	
50-----					6	20,494	-61.7						[illegible]	20,480	-60.8										8	20,559	-60.3	
40-----					6	21,882	-59.6																		6	21,950	-57.8	

Standard pressure surface (mb)	BUFFALO, N. Y. (986 MB.)				BURRWOOD, LA. (1020 MB.)				CAMAGUEY, CUBA (1002 MB.)				CARIBOU, MAINE (992 MB.)				CHARLESTON, S. C. (1017 MB.)				CIUDAD VICTORIA, MEX. (978 MB.)				COLUMBIA, MO. (990 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	28	221	3.7	76	30	3	16.4	77	13	122	18.4		30	191	1.7	84	30	13	9.5	83	28	335	22.3	47	30	239	2.7	64
1,000--	28	108			30	169	17.0	65	13	137	18.7		30	121			30	156	13.5	60	28	137			30	155		
950----	[illegible]	528	2.8	73	30	603	13.8	64	13	588	18.5		30	540	1.8	75	30	589	11.6	55	28	591	20.8	48	30	577	3.7	52
900----	28	962	0.2	75	30	1,059	11.9	57	13	1,042	15.6		30	972	1.4	64	30	1,038	9.2	54	28	1,049	17.3	53	30	1,010	2.1	52
850----	28	1,419	- 1.5	76	30	1,536	10.2	54	13	1,526	13.7		30	1,431	- 0.1	59	30	1,510	7.1	48	28	1,535	13.8	60	30	1,471	1.1	48
800----	28	1,900	- 3.5	68	30	2,039	8.5	40	13	2,036	11.7		30	1,916	- 1.2	56	[illegible]	2,007	5.3	39	28	2,044	11.4	56	30	1,957	- 0.4	43
750----	28	2,414	- 5.5	60	30	2,575	6.7	33	13	2,587	9.4		30	2,435	- 3.6	54	30	2,539	3.3	33	[illegible]	2,593	9.3	52	30	2,477	- 2.3	40
700----	28	2,947	- 7.5	56	30	3,134	4.1	30	13	3,143	6.5		30	2,971	- 6.2	51	[illegible]	3,089	0.7	30	28	3,151	6.7	42	30	3,016	- 4.7	39
650----	[illegible]	3,527	-10.4	53	30	3,736	0.9		13	3,753	3.1		30	3,555	- 9.3	49	30	3,689	- 2.0		28	3,762	2.9	37	30	3,602	- 7.6	39
600----	27	4,140	-13.4	54	30	4,371	- 2.9		13	4,391	- 0.3		30	4,163	-12.7	51	30	4,314	- 5.5		28	4,401	- 0.6		30	4,215	-11.1	37
550----	26	4,802	-17.3	50	30	5,056	- 7.0		13	5,088	- 4.3		30	4,830	-16.2	50	30	4,995	- 9.8		28	5,096	- 4.6		30	4,883	-14.7	35
500----	26	5,505	-22.1	48	30	5,791	-12.1		13	5,826	- 9.9		30	5,534	-20.7	50	30	5,720	-14.8		28	5,837	- 9.5		30	5,593	-19.3	34
450----	26	6,270	-27.4	47	30	6,591	-17.9		13	6,645	-14.8		30	6,311	-25.8	50	30	6,512	-20.4		28	6,652	-15.5		29	6,363	-24.8	38
400----	26	7,109	-33.2	44	29	7,461	-24.2		13	7,515	-20.9		30	7,151	-31.4	51	30	7,372	-26.7		28	7,522	-22.2		30	7,214	-30.9	42
350----	26	8,035	-39.4		29	8,420	-31.5		13	8,489	-27.6		30	8,083	-38.1	51	30	8,321	-33.8		28	8,490	-29.5		30	8,147	-37.8	43
300----	25	9,084	-45.9		28	9,491	-39.7		13	9,581	-35.4		30	9,127	-45.3		30	9,383	-41.7		28	9,572	-37.6		30	9,192	-45.4	
250----	23	10,276	-52.0		28	10,712	-48.8		13	10,825	-45.1		28	10,325	-52.1		30	10,596	-49.8		27	10,801	-47.4		29	10,385	-52.3	
200----	22	11,704	-55.5		28	12,146	-58.0		13	12,279	-56.5		28	11,752	-56.8		30	12,031	-56.7		27	12,242	-58.2		28	11,807	-56.3	
175----	19	12,548	-55.8		28	12,978	-62.3		13	13,112	-63.2		26	12,601	-57.3		29	12,878	-60.0		25	13,074	-63.5		28	12,652	-57.4	
150----	18	13,531	-56.1		26	13,925	-65.6		12	14,051	-68.8		23	13,582	-57.8		[illegible]	13,833	-62.7		24	14,011	-67.9		28	13,623	-58.3	
125----	16	14,698	-58.8		23	15,018	-68.7		12	15,132	-71.6		19	14,724	-58.0		28	14,946	-65.0		19	15,100	-71.1		28	14,765	-59.9	
100----	14	16,074	-59.9		20	16,343	-70.7		11	16,434	-75.0		17	16,117	-58.1		25	16,295	-66.2		11	16,418	-72.4		28	16,153	-61.0	
80-----	12	17,453	-60.1		13	17,681	-69.3		9	17,721	-75.4		9	17,537	-58.1		18	17,639	-63.9		5	17,722	-71.2		23	17,540	-61.3	
60-----	[illegible]	19,269	-60.7						5	19,424	-66.4						7	19,420	-62.5		[illegible]	19,445	-65.4		17	19,321	-59.7	
50-----	5	20,423	-59.5																						8	20,477	-59.3	

Standard pressure surface (mb)	DODGE CITY, KANS. (927 MB.)				EL PASO, TEX. (884 MB.)				ELY, NEV. (812 MB.)				GLASGOW, MONT. (940 MB.)				GRAND JUNCTION, COLO (855 MB.)				GREAT FALLS, MONT. (887 MB.)				GREENSBORO, N. C. (985 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	792	3.7	49	30	1,195	13.1	31	30	1,908	2.8	62	30	648	- 4.2	75	30	1,474	5.3	47	30	1,128	- 0.3	60	27	273	4.5	78
1,000--	30	165			30	135			30	172			30	155			30	170			30	155			27	149		
950----	30	592			30	581			30	607			30	568			30	606			30	580			27	574	7.5	54
900----	30	1,034	7.6	39	30	1,044			30	1,056			30	995	- 1.1	56	30	1,052			30	1,014			27	1,017	5.1	55
850----	30	1,504	6.8	36	30	1,526	15.8	24	30	1,528			30	1,450	- 2.1	50	30	1,523			30	1,470	0.1	52	27	1,481	2.9	52
800----	30	2,000	5.1	34	30	2,038	12.8	25	30	2,026	6.6	44	30	1,930	- 4.3	48	30	2,023	6.6	34	30	1,953	- 2.3	50	27	1,971	1.3	46
750----	30	2,530	2.9	33	30	2,583	9.8	24	30	2,559	4.6	43	30	2,440	- 7.3	50	30	2,555	3.6	34	30	2,466	- 5.4	49	27	2,493	- 0.8	41
700----	30	3,080	- 0.1	35	30	3,146	6.9	22	30	3,112	1.1	43	30	2,970	-10.6	50	30	3,106	0.2	37	30	3,001	- 8.8	51	27	3,036	- 3.6	41
650----	30	3,672	- 3.4	35	30	3,755	2.9		30	3,708	- 2.4	42	[illegible]	3,543	-14.0	50	30	3,700	- 4.1	41	30	3,576	-12.0	45	27	3,624	- 7.0	42
600----	30	4,297	- 7.5	34	30	4,393	- 1.1		30	4,336	- 6.0	41	30	4,140	-17.8	47	30	4,322	- 7.9	40	30	4,180	-15.6	45	27	4,239	- 9.8	
550----	[illegible]	4,970	-12.0	40	30	5,084	- 5.1		30	5,015	-10.0	37	29	4,793	-21.5	43	30	4,997	-12.0	38	30	4,832	-19.4	43	27	4,912	-13.4	
500----	30	5,693	-16.2	37	30	5,822	-10.4		30	5,741	-14.6	38	29	5,485	-25.9	39	[illegible]	5,716	-16.3	36	30	5,534	-24.0	44	27	5,626	-18.0	
450----	30	6,477	-21.4	33	30	6,629	-16.5		30	6,535	-20.0	38	29	6,243	-30.6	37	30	6,505	-21.4	37	30	6,297	-29.2	47	26	6,414	-23.3	
400----	30	7,336	-27.8	32	29	7,501	-23.5		30	7,360	-26.1	39	29	7,069	-36.1		30	7,395	-26.1	39	30	7,127	-35.1	47	[illegible]	7,263	-29.0	
350----	30	8,281	-35.2		28	8,462	-31.3		30	8,347	-33.3		29	7,982	-42.4		30	8,308	-34.2	38	30	8,045	-41.5		26	8,205	-35.3	
300----	[illegible]	9,336	-43.5		26	9,534	-39.9		29	9,424	-41.3		29	9,009	-48.6		29	9,367	-42.7		27	9,069	-47.9		26	9,262	-42.5	
250----	30	10,538	-52.1		24	10,753	-49.8		29	10,636	-50.7		29	10,195	-53.0		30	10,573	-51.9		22	10,252	-53.3		[illegible]	10,472	-50.2	
200----	29	11,959	-59.9		24	12,176	-60.3		29	12,058	-60.0		[illegible]	11,628	-55.3		30	11,991	-59.8		17	11,657	-55.4		[illegible]	11,910	-55.7	
175----	28	12,788	-61.6		23	12,997	-64.1		29	12,883	-63.6		28	12,479	-55.5		30	12,818	-62.7		14	12,486	-54.8		25	12,753	-58.2	
150----	27	13,748	-62.4		20	13,927	-67.5		29	13,824	-65.3		28	13,462	-55.1		29	13,768	-64.1		12	13,482	-56.2		[illegible]	13,728	-60.4	
125----	26	14,867	-63.6		19	15,017	-70.0		29	14,931	-65.8		26	14,615	-55.5		[illegible]	14,896	-64.9		8	14,631	-56.4		23	14,865	-62.3	
100----	23	16,226	-65.3		17	16,339	-72.0		26	16,272	-65.9		21	16,022	-56.5		25	16,249	-66.2		6	16,055	-57.0		21	16,238	-64.6	
80-----	18	17,594	-63.6		11	17,674	-70.8		19	17,640	-66.1		14	17,435	-57.0		22	17,592	-66.1						20	17,603	-64.3	
60-----	15	19,385	-59.9		10	19,414	-63.2		10	19,470	-57.6		10	19,270	-57.6		18	19,367	-61.1						14	19,371	-61.3	
50-----	13	20,532	-58.1		9	20,538	-60.6		5	20,561	-61.0		[illegible]	20,453	-57.5		16	20,514	-59.5						12	20,499	-60.4	
40-----	6	21,931	-57.2		7	21,926	-58.3						5	21,861	-57.9										[illegible]	21,924	-59.9	

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

NOVEMBER 1950

Standard pressure surface (mb)	HATTERAS, N. C. (1017 MB.)				HAVANA, CUBA.			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	3	12.9	76				
1,000--	30	147	13.3	66				
950----	30	580	10.8	62				
900----	30	1,027	8.3	60				
850----	30	1,497	6.1	52				
800----	30	1,992	4.0	42				
750----	30	2,522	1.6	40				
700----	30	3,068	- 1.4	40				
650----	29	3,662	- 4.6	35				
600----	29	4,282	- 8.0	34				
550----	29	4,956	-11.7	31				
500----	29	5,678	-16.4					
450----	29	6,465	-21.9					
400----	29	7,320	-27.7					
350----	29	8,266	-34.3					
300----	29	9,328	-41.6					
250----	28	10,542	-49.3					
200----	27	11,990	-55.9					
175----	27	12,834	-58.5					
150----	26	13,804	-61.4					
125----	22	14,946	-63.9					
10----	2 2	16,305	-65.8					
80-----	18	17,665	-64.4					
60-----	11	19,446	-61.2					
50-----								
40-----								
30-----								

Standard pressure surface (mb)	HILO, T. H. (1010 MB.)				INTERNAT. FALLS, MINN. (971 MB.)				JOLIET, ILL. (994 MB.)				LAKE CHARLES, LA (1019 MB.)				LANDER, WYO (829 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	9	24.1	81	30	361	- 6.2	83	30	179	1.0	75	30	5	12.1	81	30	1,696	- 0.5	63
1,000--	30	98	23.5	81	30	132			30	129			30	167	15.0	64	30	167		
950----	30	546	20.2	82	30	536	- 6.4	78	30	543	0.3	67	30	603	12.6	61	30	596		
900----	30	1,011	17.3	83	30	957	- 6.6	75	30	975	- 1.3	64	30	1,053	11.6	53	30	1,037		
850----	30	1,498	14.4	83	30	1,403	- 7.4	71	30	1,429	- 3.1	63	30	1,530	10.2	45	30	1,496		
800----	30	2,009	12.2	77	30	1,874	- 8.2	64	30	1,907	- 4.6	60	30	2,033	8.7	40	30	1,985	2.7	52
750----	30	2,555	10.0	65	30	2,382	- 9.5	57	30	2,419	- 6.3	57	30	2,574	6.3	36	30	2,509	0.7	46
700----	30	3,120	6.8	60	30	2,904	-12.1	51	30	2,951	- 8.7	52	30	3,127	3.6	36	30	3,056	- 2.5	45
650----	30	3,730	3.9	48	30	3,476	-15.2	48	30	3,531	-12.0	49	30	3,731	0.3	32	30	3,647	- 6.4	44
600----	30	4,374	0.3	42	30	4,068	-18.9	46	30	4,131	-15.4	47	30	4,361	- 3.5		30	4,261	-10.5	44
550----	28	5,069	- 3.4	35	30	4,713	-23.3	47	30	4,787	-19.1	44	30	5,049	- 7.7		30	4,930	-14.9	45
500----	28	5,816	- 8.1		30	5,400	-28.0	47	30	5,486	-23.3	42	30	5,778	-12.6		30	5,639	-19.1	42
450----	28	6,629	-13.9		30	6,154	-33.3	45	30	6,255	-27.9	40	30	6,577	-18.4		30	6,420	-24.4	45
400----	28	7,511	-20.5		30	6,965	-39.1		30	7,087	-33.6	43	29	7,441	-25.3		30	7,262	-30.2	47
350----	28	8,484	-27.9		30	7,868	-44.7		29	8,010	-40.0		29	8,394	-32.7		30	8,198	-37.1	49
300----	28	9,572	-36.4		28	8,885	-50.0		28	9,050	-46.6		29	9,461	-40.8		30	9,246	-45.1	
250----	28	10,810	-46.3		28	10,068	-51.8		25	10,254	-52.0		29	10,676	-50.1		30	10,440	-53.2	
200----	27	12,253	-58.1		27	11,512	-51.5		19	11,657	-53.7		28	12,109	-59.5		26	11,846	-59.0	
175----	23	13,083	-63.5		27	12,378	-51.6		18	12,517	-54.7		28	12,936	-63.6		26	12,679	-60.5	
150----	18	14,033	-67.5		24	13,374	-52.0		18	13,500	-55.9		27	13,876	-66.6		23	13,628	-60.3	
125----					22	14,546	-52.6		16	14,643	-56.6		27	14,970	-69.2		22	14,768	-60.7	
10----					20	15,972	-53.5		7	16,078	-60.0		26	16,291	-71.4		21	16,156	-61.2	
80-----					16	17,402	-54.8						22	17,620	-68.7		16	17,549	-61.6	
60-----					5	19,182	-55.2						19	19,367	-63.5		11	19,326	-60.5	
50-----													17	20,491	-60.9		8	20,487	-58.9	
40-----													15	21,885	-58.5		5	21,930	-57.0	
30-----													8	23,698	-56.6					

Standard pressure surface (mb)	LAS VEGAS, NEV. (940 MB.)				LITTLE ROCK, ARK. (1010 MB.)				MAZATLAN, MEXICO (1009 MB.)				MEDFORD, ORE. (971 MB.)				MERIDA, MEXICO (1014 MB.)				MIAMI, FLA. (1018 MB.)				NANTUCKET, MASS. (1014 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	660	13.2	29	30	79	8.4	67	29	14	26.3	74	30	401	8.3	91	30	27	22.8	75	30	4	19.6	77	30	14	8.4	85
1,000--	30	134			30	162	9.4	55	29	95	25.6	73	30	156			30	151	22.7	74	30	159	20.1	69	30	127	9.4	78
950----	30	577			30	592	9.2	50	29	554	24.4	57	30	584	9.6	79	30	597	20.1	69	30	603	17.3	69	30	555	8.4	68
900----	30	1,034	17.3	24	30	1,035	7.1	49	29	1,019	22 3	54	30	1,032	9.1	68	30	1,061	16.9	69	30	1,060	14.4	69	30	998	6.6	60
850----	30	1,519	14.4	27	30	1,504	5.8	48	29	1,514	19.8	45	30	1,505	6.7	65	30	1,546	13.5	70	30	1,542	12.5	60	30	1,465	4.5	59
800----	30	2,028	11.4	29	30	1,999	4.4	46	29	2,034	17.0	31	30	2,001	4.7	61	30	2,054	10.3	65	30	2,049	10.1	57	30	1,958	2.7	55
750----	30	2,566	8.2	30	30	2,530	2.3	46	29	2,582	13.0	36	30	2,531	2.2	55	30	2,595	8.7	44	30	2,588	7.9	48	30	2,481	- 0.0	52
700----	30	3,130	5.2		30	3,078	- 0.2	43	29	3,156	8.6	37	30	3,079	- 0.8	47	30	3,158	6.9	32	30	3,150	6.0	29	30	3,027	- 2.8	45
650----	30	3,738	2.1		30	3,673	- 3.3	40	28	3,769	4.1	36	30	3,670	- 4.2	49	30	3,769	4.2		30	3,758	3.0		30	3,617	- 6.0	44
600----	30	4,372	- 1.9		29	4,298	- 6.8	36	28	4,411	- 0.1		30	4,294	- 7.5	45	30	4,411	0.9		30	4,396	- 0.6		30	4,233	- 9.5	41
550----	30	5,061	- 6.2		29	4,976	-10.7	35	28	5,101	- 4.5		30	4,965	-11.5	44	30	5,106	- 3.4		30	5,085	- 4.7		30	4,904	-13.7	37
500----	30	5,797	-11.4		29	5,699	-15.6	35	28	5,846	- 9.5		30	5,690	-16.2	41	29	5,850	- 8.2		30	5,828	- 9.9		30	5,618	-18.7	40
450----	30	6,599	-17.3		29	6,490	-21.1		28	6,651	-15.5		30	6,479	-21.3	43	29	6,665	-14.0		30	6,637	-15.7		30	6,401	-24.2	41
400----	30	7,468	-23.9		29	7,345	-27.8	38	27	7,528	-22.3		30	7,334	-27.4	46	29	7,543	-20.4		30	7,510	-21.9		30	7,243	-30.5	42
350----	30	8,428	-31.7		28	8,281	-35.7		27	8,494	-29.7		30	8,281	-34.5	44	29	8,517	-27.5		30	8,478	-28.9		30	8,176	-37.0	
300----	30	9,499	-40.3		28	9,335	-43.8		27	9,573	-38.1		29	9,355	-42.0		29	9,606	-35.8		30	9,563	-36.9		30	9,228	-43.8	
250----	30	10,717	-49.9		27	10,539	-52.4		27	10,801	-47.8		29	10,566	-50.7		29	10,846	-45.8		30	10,799	-46.2		29	10,439	-51.5	
200----	30	12,143	-59.6		27	11,956	-59.5		26	12,236	-58.9		29	11,990	-59.4		28	12,293	-57.9		30	12,247	-56.8		28	11,870	-57.8	
175----	30	12,970	-63.6		27	12,786	-61.8		26	13,062	-64.1		28	12,835	-62.2		26	13,122	-64.1		30	13,082	-62.4		28	12,709	-59.3	
150----	30	13,910	-65.8		27	13,736	-63.6		25	13,995	-69.1		28	13,785	-63.1		20	14,038	-70.1		28	14,024	-67.4		26	13,664	-60.2	
125----	29	15,012	-68.3		26	14,853	-64.9		21	15,072	-72.7		28	14,903	-64.6		13	15,113	-72.9		25	15,114	-70.2		23	14,795	-61.5	
100----	27	16,338	-69.5		21	16,213	-65.6		15	16,381	-75.0		24	16,292	-65.8		5	16,393	-75.6		17	16,417	-73.2		22	16,169	-62.5	
80-----	25	17,676	-68.5		15	17,560	-63.2		13	17,674	-74.3		19	17,666	-65.3						9	17,716	-71.8		20	17,545	-62.3	
60-----	21	19,424	-64.6		10	19,336	-61.2		10	19,365	-70.0		13	19,428	-63.9						6	19,437	-65.4		16	19,349	-61.0	
50-----	18	20,558	-62.2		8	20,473	-59.1		9	20,468	-65.0		9	20,537	-63.0						6	20,560	-60.7		12	20,506	-60.0	
40-----	12	21,957	-59.0						6	21,834	-61.3														7	21,939	-59.7	

Standard pressure surface (mb)	NASHVILLE, TENN. (998 MB.)				NORTH PLATTE, NEBR. (919 MB.)				OAKLAND, CALIF. (1018 MB.)				OKLAHOMA CITY, OKLA. (973 MB.)				OMAHA, NEBR. (982 MB.)				PHOENIX, ARIZ. (975 MB.)				PITTSBURGH, PA. (970 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	177	5.7	70	28	849	1.6	63	30	6	15.4	72	30	391	6.8	55	30	308	1.9	68	30	338	15.3	46	29	382	2.9	74
1,000--	30	162			28	153			30	154	16.6	66	30	162			30	157			30	122			29	135		
950----	30	586	5.2	60	28	577			30	596	15.5	58	30	590	9.2	43	30	576	3.0	51	30	567	22.5	24	29	555	4.2	69
900----	30	1,023	3.6	56	28	1,015	3.3	50	30	1,048	14.0	52	30	1,035	8.0	40	30	1,010	1.5	48	30	1,033	20.0	23	29	991	1.5	66
850----	30	1,486	2.4	52	28	1,480	3.4	42	30	1,528	11.7	51	30	1,506	7.9	38	30	1,469	0.2	47	30	1,522	16.5	24	29	1,449	- 0.6	66
800----	30	1,975	0.8	50	28	1,970	1.8	39	30	2,033	9.2	46	30	2,004	6.4	36	30	1,953	- 1.5	46	30	2,034	13.3	25	29	1,932	- 2.4	57
750----	30	2,496	- 1.4	49	28	2,495	- 0.7	41	30	2,572	6.4	44	30	2,537	4.6	33	30	2,470	- 3.7	46	30	2,578	10.0	26	29	2,451	- 4.1	57
700----	30	3,038	- 3.7	49	28	3,035	- 4.0	43	30	3,128	3.7	35	30	3,091	1.7	32	30	3,008	- 6.1	45	30	3,143	6.6	23	29	2,985	- 6.7	60
650----	30	3,628	- 6.0	48	28	3,623	- 7.9	45	30	3,733	0.6		30	3,688	- 1.4	32	30	3,593	- 9.6	44	30	3,753	3.3		29	3,567	- 9.5	58
600----	29	4,247	- 9.5	43	28	4,233	-11.8	45	30	4 366	- 3.1		30	4,318	- 5.3	32	30	4,199	-13.1	45	30	4,393	- 0.6		29	4,175	-12.8	54
550----	29	4,918	-13.4	41	28	4,901	-16.1	48	30	5,052	- 7.3		30	4,996	- 9.6	31	30	4,860	-17.3	46	30	5,083	- 5.3		28	4,846	-16.1	50
500----	29	5,633	-17.7	38	27	5,606	-20.4	46	30	5,786	-12.2		30	5,724	-14.6	33	30	5,565	-22.1	47	29	5,822	-10.7		28	5,554	-20.5	47
450----	29	6,414	-22.9	37	27	6,384	-25.4	45	30	6,588	-18.1		30	6,517	-20.0	29	29	6,341	-27.3	46	29	6,630	-16.5		28	6,328	-25.5	45
400----	29	7,267	-29.0	39	27	7,223	-31.2	44	30	7,452	-24.7	40	30	7,376	-26.5	28	28	7,178	-32.8	41	29	7,498	-23.4		28	7,171	-31.1	42
350----	29	8,208	-35.9		27	8,156	-37.5		30	8,408	-32.5	40	30	8,325	-34.2		26	8,106	-39.1		29	8,458	-31.3		27	8,099	-37.4	
300----	28	9,260	-43.3		24	9,208	-45.0		30	9,475	-41.1		30	9,385	-42.6		26	9,146	-46.2		29	9,530	-40 3		27	9,146	-44.4	
250----	28	10,467	-51.0		24	10,406	-52.1		30	10,687	-50.7		30	10,590	-51.8		26	10,340	-52.6		29	10,745	-50.3		26	10,339	-50.4	
200----	25	11,886	-57.1		22	11,831	-57.1		30	12,110	-59.3		29	12,018	-59.6		26	11,768	-55.7		28	12,176	-60.1		26	11,779	-55.0	
175----	24	12,721	-58.9		22	12,672	-59.0		28	12,934	-63.2		29	12,847	-62.6		24	12,624	-57.0		27	13,008	-64.4		26	12,627	-56.3	
150----	22	13,682	-59.9		21	13,631	-60.1		27	13,874	-65.5		29	13,793	-64.0		23	13,595	-58.3		25	13,939	-67.2		25	13,607	-57.5	
125----	20	14,799	-61.5		18	14,778	-62.5		25	14,977	-66.6		26	14,911	-65.9		22	14,731	-59.6		25	15,030	-69.6		24	14,755	-59.3	
100----	17	16,172	-62.8		18	16,153	-62.0		22	16,328	-69.1		26	16,262	-66.6		18	16,122	-60.4		23	16,355	-71.6		23	16,141	-60.6	
80-----	13	17,543	-62.5		15	17,528	-62.7		19	17,657	-67.0		23	17,612	-66.2		14	17,525	-60.5		19	17,669	-69.8		22	17,525	-60.7	
60-----	11	19,320	-59.4		10	19,294	-61.4		11	19,398	-64.8		16	19,367	-62.0		7	19,344	-60.3		16	19,381	-65.0		14	19,337	-59.1	
50-----	7	20,453	-58.0		6	20,454	-60.1		8	20,527	-62.7		16	20,499	-60.3		5	20,538	-57.3		11	20,507	-62.3		12	20,482	-58 2	
40-----													9	21,912	-59.0						6	21,881	-62.1		5	21,917	-58.5	

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb)	PORTLAND, MAINE (1012 MB.)				RAPID CITY, S. DAK. (906 MB.)				ST. CLOUD, MINN. (977 MB.)				SAN ANTONIO, TEX. (991 MB.)				SAN JUAN, P. R. (1010 MB.)				SANTA MARIA, CALIF. (1009 MB.)				S.STE. MARIE, MICH. (985 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	29	20	4.7	85	29	966	- 1.2	69	30	317	- 3.9	76	30	240	14.9	55	30	19	25.1	86	30	71	14.3	75	30	221	- 1.1	84
1,000--	29	119	6.8	71	29	161			30	133			30	160			30	110	24.9	83	30	148	15.2	72	30	99		
950----	29	541	5.7	65	29	583			30	545	- 3.0	68	30	599	16.2	52	30	566	22.0	82	30	591	16.9	57	30	515	- 2.0	78
900----	29	981	4.0	63	29	1,015			30	968	- 3.7	65	30	1,055	14.2	53	30	1,029	18.9	82	30	1,045	16.4	43	30	938	- 3.2	73
850----	29	1,445	2.7	58	29	1,474	0.3	53	30	1,419	- 4.7	59	30	1,536	12.3	52	30	1,519	16.0	79	30	1,529	14.3	39	30	1,389	- 4 8	70
800----	29	1,933	0.5	56	29	1,959	- 0.9	50	30	1,895	- 5.4	52	30	2,043	10.7	46	30	2,033	13.7	73	30	2,038	11.5	37	30	1,864	- 6.5	66
750----	29	2,454	- 2.0	56	29	2,479	- 3.6	51	30	2,408	- 7.3	47	30	2,587	8.7	35	30	2,583	11.3	62	30	2,582	9.0	33	30	2,372	- 8.8	64
700----	29	2,995	- 4.8	54	29	3,015	- 6.3	52	30	2,935	-10.2	45	30	3,146	5.7	31	30	3,150	8.6	48	30	3,144	6 6		30	2,898	-11.6	62
650----	29	3,580	- 8.2	53	29	3,597	- 9.5	50	30	3,508	-13.4	40	30	3,753	2.1	27	30	3,767	5.7	40	30	3,755	2.9		30	3,470	-14.5	59
600----	28	4,192	-11.4	50	29	4,205	-13.4	50	30	4,107	-17.1	38	30	4,389	- 1.4		29	4,410	2.3		30	4,392	- 1.3	26	28	4,057	-17.8	56
550----	28	4,859	-15.1	47	28	4,871	-17.6	51	30	4,758	-21.0	42	30	5,080	- 5.8		28	5,113	- 1.3		30	5,084	- 6.0	28	28	4,707	-21.7	53
500----	27	5,570	-19.9	42	26	5,574	-21.8	51	30	5,452	-25.9	43	30	5,816	-10.7		28	5,863	- 5.4		30	5,818	-11.2		28	5,399	-26.4	54
450----	27	6,345	-25.5	41	26	6,345	-26.9	50	30	6,210	-31.1	42	30	6,619	-16.6		27	6,690	-10.6		30	6,625	-16.9		27	6,137	-32.6	55
400----	27	7,187	-31.6		24	7,175	-33.2	48	28	7,033	-36.6		30	7,492	-23.4		26	7,576	-16.6	40	30	7,493	-23.7		27	6,959	-38.3	
350----	27	8,119	-37.9		24	8,100	-39.7		28	7,946	-42.7		30	8,454	-30.9		25	8,566	-23.7		30	8,453	-31.2		27	7,866	-43.8	
300----	24	9,169	-45.4		24	9,138	-46.7		28	8,973	-48.3		30	9,528	-39.4		25	9,673	-32.4		29	9,524	-39.9		27	8,889	-48.7	
250----	20	10,373	-52.6		24	10,327	-53.0		28	10,163	-51.8		28	10,749	-48.7		25	10,933	-42.5		29	10,743	-49.5		27	10,076	-51.9	
200----	14	11,745	-56.1		22	11,764	-56.1		28	11,607	-51.6		25	12,182	-58.4		25	12,399	-55.5		29	12,173	-58 9		27	11,518	-52.4	
175----	8	12,619	-58.5		20	12,608	-56.9		27	12,479	-52.3		25	13,013	-62.7		25	13,236	-62.5		29	13,003	-62.6		27	12,382	-51.8	
150----	8	13,584	-59.8		17	13,578	-57.5		27	13,472	-53.7		24	13,957	-67.0		24	14,168	-69.5		29	13,944	-65.9		26	13,383	-52.9	
125----	6	14,739	-61.7		16	14,733	-59.3		23	14,643	-54.8		22	15,044	-69.2		23	15,241	-74.4		26	15,041	-68.0		23	14,558	-53.7	
100----	5	16,126	-62.1		11	16,146	-60.1		16	16,085	-56.2		18	16,366	-64.1		17	16,520	-79.3		22	16,376	-68.7		22	15,997	-55.0	
80-----					10	17,528	-60.1		13	17,495	-56.2		12	17,689	-70.1		11	17,771	-80.1		19	17,703	-68.1		18	17,409	-55.4	
60-----					9	19,324	-58.7		6	19,315	-55.4		7	19,412	-65.1						11	19,437	-64.7		9	19,177	-57.6	
50-----					6	20,510	-58.9		5	20,458	-56.9										1	20,561	-62.2		5	20,297	-58.3	
40-----																					5	21,947	-59.7					

Standard pressure surface (mb)	SPOKANE, WASH. (933 MB.)				SWAN ISLAND, W. I.				TACUBAYA, MEXICO (775 MB.)				TAMPA, FLA. (1018 MB.)				TATOOSH ISLAND, WASH. (1011 MB.)				TOLEDO, OHIO (991 MB.)				WASHINGTON, D. C. (1006 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	722	2.1	81					30	2,306	14.1	41	30	9	16.4	78	30	31	7.4	80	30	191	1.8	81	30	88	7.4	69
1,000--	30	158							30	84			30	164	17.5	70	30	123			30	118			30	135		
950----	30	581							30	543			30	606	15.4	70	30	546	4.9	74	30	534	1.6	70	30	561	6.9	58
900----	30	1,015	2.7	69					30	1,017			30	1,059	13.0	68	30	983	2.6	73	30	967	- 0.5	70	30	1,004	5.1	56
850----	30	1,476	0.5	65					30	1,508			30	1,538	10.9	63	30	1,443	- 0.0	69	30	1,423	- 2.1	65	30	1,469	2.9	56
800----	30	1,961	- 2.2	61					30	2,035			30	2,042	8.5	57	30	1,926	- 2.7	63	30	1,903	- 3.9	62	30	1,958	0.9	57
750----	30	2,479	- 4.6	59					30	2,583	12.9	41	30	2,580	6.5	43	30	2,439	- 5.3	55	30	2,418	- 5.8	59	30	2,476	- 1.7	57
700----	30	3,011	- 7.4	55					30	3,154	8.9	44	30	3,137	4.1		30	2,974	- 7.9	53	30	2,949	- 8.2	55	30	3,020	- 4.8	56
650----	30	3,592	-10.7	54					30	3,769	4.4	49	30	3,741	1.5		30	3,550	-11.2	52	29	3,529	-11.8	50	30	3,605	- 7.7	56
600----	30	4,197	-14.2	54					30	4,410	- 0.1	45	30	4,377	- 2.2		30	4,156	-14.9	48	29	4,130	-15.5	46	30	4,218	-11.0	48
550----	30	4,856	-18.0	54					30	5,108	- 3.3		30	5,004	- 6.5		30	4,813	-18.8	48	29	4,788	-19.1	43	30	4,887	-14.8	39
500----	30	5,558	-22.6	56					30	5,850	- 7.8		29	5,804	-11.2		30	5,515	-22.9	46	29	5,486	-23.3		29	5,609	-18.9	
450----	30	6,328	-27.8	56					30	6,671	-13.5		29	6,611	-17.1		30	6,282	-27.9	48	29	6,250	-28.7		29	6,387	-24.6	
400----	30	7,160	-33.1	54					30	7,549	-20.0		29	7,477	-23.6		30	7,116	-33.5	47	28	7,088	-34.0	37	29	7,232	-30 7	
350----	30	8,086	-39.6						28	8,526	-27.5		29	8,438	-30.8		30	8,041	-39.5		28	8,011	-39.7		29	8,167	-36.9	
300----	29	9,134	-46.6						27	9,616	-36.0		29	9,514	-38.9		29	9,083	-45.8		27	9,055	-45.6		28	9,209	-44.0	
250----	26	10,320	-53.0						26	10,858	-45.9		29	10,740	-47.9		28	10,286	-51.9		24	10,258	-50.9		28	10,414	-50.8	
200----	25	11,750	-56.7						24	12,309	-57.4		26	12,184	-57.6		28	11,715	-56.1		19	11,680	-52.5		24	11,825	-56.1	
175----	24	12,604	-57.9						23	13,142	-63.5		25	13,015	-62.3		27	12,564	-56.7		15	12,536	-52.9		22	12,670	-56 9	
150----	22	13,570	-57.4						20	14,072	-69.7		24	13,953	-66.7		26	13,540	-56.5		10	13,504	-55.0		21	13,629	-58.1	
125----	19	14,729	-57.8						11	15,161	-72.0		19	15,058	-69.7		22	14,703	-57.0		8	14,633	-55.3		18	14,765	-60.6	
100----	15	16,149	-59.5						5	16,463	-74.8		17	16,388	-72.2		19	16,105	-56.5						16	16,147	-61.3	
80-----	13	17,562	-58.3										11	17,697	-71.1		16	17,507	-56.0						11	17,509	-61.5	
60-----	7	19,371	-58.4														9	19,368	-57.1						6	19,316	-60.2	
50-----	5	20,520	-58.0																									

Note: All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

able 21

NOVEMBER 1950

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	261	1.6	30	248	1.1	30	287	2.9	26	275	3.0	26	286	2.4	28	300	0.3	30	140	3.0	23	223	3.1	29	186	2.8	30	252	1.6	27	248	3.3	30	254	1.7
500	--	---	----	--	---	----	30	276	3.4	--	---	----	--	---	----	--	---	----	30	146	3.9	23	231	5.2	29	195	6.8	30	251	2.9	27	246	4.0	--	---	----
1,000	30	236	3.6	--	---	----	29	276	5.1	--	---	----	26	279	5.3	28	212	.3	28	177	3.8	20	234	8.2	24	212	8.1	29	263	4.1	22	251	6.8	--	---	----
1,500	30	245	5.1	--	---	----	27	275	7.1	26	259	7.2	26	288	7.8	28	236	1.9	25	210	3.3	12	240	11.5	19	241	9.6	28	267	6.8	18	258	9.6	30	261	2.1
2,000	30	256	6.5	30	270	2.3	23	281	8.8	26	271	8.9	23	286	9.5	28	265	5.7	20	238	3.7				11	262	8.3	26	277	10.5	17	274	11.0	30	277	3.1
2,500	29	265	8.8	30	288	5.7	22	285	11.5	26	281	10.5	21	292	11.9	27	271	9.4	17	275	2.9							23	274	10.2	17	273	13.1	30	288	5.2
3,000	29	273	10.8	30	297	7.5	20	289	12.6	24	284	13.5	19	298	14.5	22	279	9.9	13	307	2.3							22	277	12.1	12	276	14.9	30	282	6.8
4,000	27	278	13.1	30	299	11.4	17	292	13.9	19	285	17.0	16	296	14.9	19	285	13.5	11	328	3.4							20	269	12.2				30	288	9.9
5,000	22	284	13.1	26	301	13.8	15	290	16.2	14	300	18.9	16	301	18.9	13	285	16.8	11	316	7.2							16	269	14.3				30	290	10.8
6,000	21	284	14.4	26	297	15.8	11	279	17.2				14	299	25.2	10	281	23.0	10	323	8.3							12	281	14.6				29	295	11.5
8,000	18	285	17.1	25	300	17.4																											27	293	12.4
10,000				19	306	19.4																											24	303	12.9
12,000				15	298	21.0																											20	309	12.3
14,000																																	17	293	13.3
16,000																																	11	300	13.8

	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
Surface	28	332	0.5	30	314	2.4	30	232	2.7	29	259	3.2	29	353	0.6	28	264	3.7	30	48	0.8	28	272	1.0	25	166	0.2	29	44	3.3	29	277	0.9	27	270	2.7
500	--	---	----	--	---	----	30	228	4.1	--	---	----	28	252	2.0	28	274	5.7	--	---	----	28	244	2.7	25	173	.3	29	47	3.9	29	280	2.0	27	250	3.2
1,000	--	---	----	--	---	----	30	238	5.6	29	263	5.8	28	264	3.7	26	281	7.5	30	40	.8	27	253	3.9	25	198	1.6	28	31	3.0	28	286	3.5	26	260	5.5
1,500	--	---	----	30	313	2.4	25	253	8.1	28	271	8.4	24	279	4.4	20	296	10.2	30	291	1.6	24	293	6.4	24	217	4.1	28	6	2.0	22	305	6.7	22	267	9.2
2,000	28	306	.5	30	297	2.7	24	267	9.9	27	278	10.8	24	280	6.1	18	292	12.8	30	273	2.5	24	299	9.8	18	226	7.0	26	309	2.7	20	292	8.2	21	274	11.4
2,500	28	271	2.1	30	261	3.5	23	270	11.1	25	287	12.4	22	297	6.8	15	295	14.8	29	267	3.0	21	303	14.8	15	237	6.6	23	292	3.8	17	299	9.3	19	270	13.1
3,000	27	275	4.6	29	262	6.5	20	267	11.2	20	286	13.6	22	294	8.2	13	297	16.0	29	282	3.8	21	296	15.4	12	240	9.4	21	283	4.7	14	282	9.8	18	274	15.4
4,000	26	288	10.0	26	284	10.2	17	279	16.4	16	288	15.2	18	282	9.9	11	299	22.0	29	277	6.8	16	305	18.8				17	278	6.2				14	276	20.8
5,000	22	290	13.3	23	303	14.7	17	283	19.3	12	288	15.9	17	283	12.1	10	303	23.1	26	290	9.5	13	309	22.4				10	278	9.6				11	276	20.6
6,000	19	293	16.1	22	305	20.4	16	279	23.1				12	274	13.0				22	296	11.5	11	311	27.6												
8,000	13	290	18.9	17	299	26.0	12	271	25.5										17	302	14.5															
10,000	11	293	20.0																13	297	18.1															
12,000																			10	293	15.7															

	New York, N.Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)		
Surface	28	243	2.8	27	244	0.9	30	272	0.9	30	300	2.9	30	180	0.3	28	317	1.2	29	286	2.6	28	274	2.5	30	151	0.8	27	288	3.3	27	273	1.4	26	193	2.8
500	27	241	5.2	27	74	.8	30	277	.5	30	291	3.7	30	159	.5	--	---	----	29	292	3.4	28	268	4.4	30	189	1.7	27	316	2.5	27	273	2.4	26	202	5.9
1,000	24	253	7.0	27	299	1.1	30	260	1.8	29	301	5.5	30	137	.7	28	314	1.3	27	305	5.9	25	283	6.1	30	195	2.4	26	353	1.0	21	239	2.3	22	211	7.8
1,500	22	266	8.9	22	288	2.3	29	270	5.1	29	306	8.0	30	149	.8	28	285	4.4	23	308	8.8	20	295	7.4	28	217	3.0	26	53	1.1	14	237	2.0	20	217	8.3
2,000	19	260	11.5	18	306	2.3	28	285	8.8	25	309	10.9	30	282	.8	26	288	7.7	19	304	9.8	17	290	10.5	27	262	4.4	26	8	.8	14	255	3.9	16	222	5.6
2,500	18	254	13.0	16	317	1.3	27	289	10.3	24	303	12.7	30	307	2.3	23	295	10.9	17	309	11.8	15	295	13.1	25	270	6.2	25	303	1.4	12	254	3.9	13	244	5.3
3,000	13	252	15.3	16	281	2.7	27	293	12.3	23	305	13.8	30	297	4.3	22	295	13.6	16	311	13.8	14	288	16.4	23	293	6.7	24	314	2.3	10	260	6.1	12	254	7.4
4,000				15	266	4.8	23	291	16.3	16	309	17.1	27	295	6.9	16	296	17.2	14	314	18.3	13	294	21.3	22	296	8.4	24	284	2.9							
5,000				14	271	6.4	15	281	18.3	16	305	21.3	26	298	9.0				11	308	19.4				21	301	9.0	23	298	4.0							
6,000				12	282	7.0	11	282	21.8	13	302	22.5	24	294	11.0										20	303	11.1	23	299	5.2							
8,000													15	296	11.9										15	301	10.9	20	307	5.7							
10,000																									15	307	13.4	20	301	4.3							
12,000																									10	301	13.3	17	303	5.3							
14,000																												10	314	9.5							

	Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	27	207	3.1	29	219	1.5
500	--	---	----	29	220	4.9
1,000	27	209	5.4	29	241	6.5
1,500	23	224	7.7	29	255	9.7
2,000	22	246	8.1	26	261	10.2
2,500	19	255	8.0	26	262	12.2
3,000	13	265	8.8	24	262	13.5
4,000				20	256	17.1
5,000				16	248	17.5
6,000				11	259	20.6

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

Table 22 — NOVEMBER 1950

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrwood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			International Falls, Min (358 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	60	1.3	30	123	2.9	29	330	2.5	29	117	1.4	30	21	2.3	29	198	1.9	30	268	1.7	29	267	1.4	30	34	1.2	29	245	1.3	29	254	2.3	30	292	1.4
500	--	---	----	--	---	----	--	---	----	29	145	5.4	29	39	1.5	29	224	4.9	30	256	4.1	29	272	3.8	--	---	----	29	241	4.5	28	253	4.9	29	301	2.0
1,000	--	---	----	30	159	3.0	29	300	6.4	29	156	4.6	29	324	1.2	28	235	6.8	30	262	5.5	29	291	7.1	--	---	----	29	257	7.2	28	244	6.2	29	315	3.3
1,500	--	---	----	30	256	3.4	29	304	8.2	29	189	2.2	29	298	2.9	28	239	8.0	29	258	6.8	29	297	8.3	30	31	1.2	29	263	7.9	27	249	6.6	29	321	4.7
2,000	30	298	3.4	30	271	6.2	29	300	9.7	30	266	1.6	29	297	4.6	27	238	8.6	29	259	7.9	29	294	9.7	29	281	1.6	29	269	8.4	27	252	7.6	28	317	5.1
2,500	30	299	5.8	30	284	7.2	29	301	11.1	29	270	1.8	29	295	6.4	27	236	9.9	28	266	9.4	28	291	11.1	29	263	4.1	29	267	10.2	25	262	8.8	28	312	5.7
3,000	30	291	7.9	30	291	8.6	28	295	12.7	28	275	1.7	29	292	8.3	27	234	12.3	28	261	11.0	28	293	11.9	30	267	6.1	29	267	11.6	25	261	9.8	28	309	7.1
4,000	30	294	10.1	28	293	8.8	26	299	16.5	28	305	4.5	28	284	9.0	26	241	14.4	25	259	12.0	27	291	15.5	30	286	10.4	29	263	15.0	26	260	12.1	26	293	10.0
5,000	28	304	13.6	28	295	11.9	24	298	18.0	27	305	6.0	27	286	10.1	25	234	16.2	22	267	14.6	23	280	17.9	29	298	16.0	28	260	17.8	25	254	15.2	25	293	9.7
6,000	25	300	15.5	28	296	13.9	19	303	18.4	26	296	6.6	25	279	10.7	22	230	19.3	22	264	16.9	23	278	22.0	26	301	20.0	24	263	18.9	22	257	17.3	24	280	10.5
8,000	22	303	16.6	27	296	17.5	13	303	19.8	25	280	8.7	26	282	15.6	15	235	19.9	20	266	19.1	18	271	26.8	18	306	24.0	17	263	23.2	16	257	13.2	22	293	14.0
10,000	16	317	19.6	21	307	21.3	10	315	19.1	24	283	15.3	23	291	18.2				17	268	22.0	11	261	25.0				11	279	16.4	16	262	16.7	20	294	16.3
12,000				15	308	20.4				17	283	17.1	18	282	25.2				13	273	20.0							11	273	18.1	15	258	21.0	15	284	13.4
14,000										14	279	16.9	14	275	22.9				12	271	23.3										13	266	18.5	11	277	12.0
16,000										11	277	13.6	10	270	17.9																12	257	14.5	10	271	10.8

Altitude (meters) m.s.l.	Little Rock, Ark. (80 m.)			Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria Calif. (72 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	29	225	0.6	30	143	0.9	30	11	1.8	24	262	1.3	29	262	1.5	30	186	0.3	29	43	1.5	30	329	3.7	30	105	1.6	30	84	2.0	30	288	2.4	30	35	1.7
500	29	237	3.5	28	144	1.1	30	47	4.2	24	244	5.6	29	238	4.2	29	291	1.1	25	28	1.4	--	---	----	30	151	4.4	30	73	5.9	27	304	4.5	30	24	3.2
1,000	27	270	5.1	28	176	2.8	30	43	3.7	22	248	7.6	28	262	6.5	28	291	1.1	25	306	2.9	30	328	3.7	30	177	4.4	30	75	5.6	28	310	6.9	30	16	2.8
1,500	26	296	6.8	28	216	6.0	30	34	2.4	17	251	7.4	27	276	8.3	28	267	2.1	27	296	5.7	30	315	6.6	30	224	3.8	30	70	5.6	25	323	8.3	30	326	2.4
2,000	26	298	8.9	27	233	7.9	30	17	1.5	15	244	11.2	26	285	10.4	28	260	3.1	28	298	7.7	30	315	9.5	30	262	4.7	30	66	4.4	23	312	8.7	30	303	2.8
2,500	26	296	11.2	28	251	10.3	30	319	.6	12	254	9.8	25	283	11.9	28	264	4.6	29	293	9.0	27	308	10.9	30	282	6.5	30	65	3.5	23	308	9.1	30	291	3.3
3,000	26	295	14.1	29	255	11.6	30	292	1.8	11	266	11.7	26	281	14.3	29	268	6.9	29	295	11.1	27	307	12.7	30	294	7.6	30	62	2.4	23	302	11.3	30	289	4.6
4,000	24	297	17.7	29	264	15.1	30	281	4.1	11	264	12.7	26	277	18.1	26	276	8.9	26	287	15.3	25	304	18.6	30	297	8.5	29	36	1.2	21	290	14.5	29	277	7.6
5,000	21	279	19.9	23	266	16.8	30	271	7.0				25	272	21.0	26	283	12.0	24	281	18.3	24	300	18.6	30	297	10.5	28	5	1.9	18	285	17.4	28	277	8.7
6,000	20	281	23.3	20	266	19.6	30	271	10.2				21	273	23.4	25	274	13.3	24	290	21.6	19	295	23.4	29	296	11.0	27	308	1.7	16	292	19.8	28	279	10.3
8,000	12	283	31.3	14	273	21.8	29	263	17.1				14	269	21.2	21	287	14.3	21	285	24.9	13	290	26.1	28	290	12.9	26	273	5.4	15	297	23.3	26	273	11.4
10,000							29	261	25.6				11	267	16.8	14	274	17.1	16	288	32.9				24	291	16.7	26	268	9.5	10	288	23.7	23	274	11.2
12,000							25	256	30.8										11	273	32.2				18	291	17.4	26	268	14.2				22	284	10.3
14,000							21	255	28.8																15	283	17.1	26	274	15.9				19	297	11.0
16,000																									12	272	13.8	20	284	8.6				14	305	10.0
18,000																																		12	336	8.5

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	21	1.1	29	173	2.4	29	122	4.1
500	30	241	.8	--	---	----	29	165	4.4
1,000	29	268	3.6	29	204	4.8	27	197	3.7
1,500	28	274	4.4	29	231	6.7	26	223	3.9
2,000	28	269	5.2	28	242	7.1	26	229	5.7
2,500	28	265	5.7	27	257	7.9	26	236	7.2
3,000	26	272	4.7	27	269	10.2	25	247	8.9
4,000	23	248	5.6	26	276	12.8	22	261	14.8
5,000	22	260	6.0	21	288	16.3	22	261	19.0
6,000	19	242	5.3	17	287	17.2	20	257	21.7
8,000	14	263	15.0				15	264	23.7
10,000	10	274	9.4						

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.

SOLAR RADIATION DATA

able 30.-Solar radiation intensities, tabulated in langleys per minute. NOVEMBER 1950

TABLE MOUNTAIN, CALIF.

Date	Sun's zenith distance: A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a.m.	1:30 p.m.
	Air mass: 3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
ovember										Mb.	Mb.
----	----	----	----	1.47	----	----	----	----	----		
----	----	----	----	1.45	----	----	----	----	----		
----	----	----	----	1.46	----	----	----	----	----		
----	1.15	1.24	1.34	1.45	----	----	----	----	----		
----	----	----	----	1.48	----	----	----	----	----		
----	1.16	1.25	1.35	1.47	----	----	----	----	----		
----	----	----	----	1.44	----	----	----	----	----		
----	----	----	----	1.49	----	----	----	----	----		
----	----	----	----	1.52	----	----	----	----	----		
----	1.20	1.28	1.39	1.51	----	----	----	----	----		
----	----	----	----	1.50	----	----	----	----	----		
----	----	----	----	1.50	----	----	----	----	----		
ver-											
ages	1.17	1.26	1.36	1.48	----	----	----	----	----		
epar-											
tures	-.01	.00	-.01	-.01	----	----	----	----	----		

LINCOLN, NEBR.

	Air mass: 4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
ovember										Mb.	Mb.
0----	----	0.89	1.11	1.27	----	1.24	1.09	0.92	0.81	1.83	2.13
6----	0.87	.98	1.13	1.31	----	1.31	----	----	----	4.84	4.84
5----	.79	.92	1.13	----	----	----	1.20	1.07	.98	2.23	3.02
7----	.92	1.02	1.16	----	----	----	1.16	1.05	.92	2.88	3.15
ver-											
ages	.86	.95	1.13	1.29	----	1.28	1.15	1.01	.90	----	----
epar-											
tures	-.03	-.06	-.03	-.06	----	-.04	-.01	-.01	.00	----	----

MADISON, WIS.

	Air mass: 4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
ovember										Mb.	Mb.
-----	0.50	0.61	0.80	0.94	----	----	----	----	----	14.8	14.8
-----	.45	.59	.79	1.03	----	----	----	----	----	5.8	4.8
-----	----	----	.75	----	----	----	----	----	----	5.3	5.1
3----	----	.74	.96	----	----	----	----	----	----	3.5	4.0
7----	.73	----	----	----	----	----	----	----	----	3.7	4.8
0----	.79	.92	1.04	----	----	----	----	----	----	1.7	2.1
1----	.76	.90	1.04	----	----	----	----	----	----	2.7	4.0
4----	.49	.71	.92	----	----	----	----	----	----	.7	1.3
0----	.83	.95	1.11	----	----	----	1.14	----	----	2.7	3.3
ver-											
ages	.65	.77	.93	.99	----	----	1.14	----	----	----	----
epar-											
tures	-.20	-.20	-.19	-.30	----	----	+.03	----	----	----	----

BOSTON, MASS.

	Air mass: 4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
ovember										Mb.	Mb.
-----	----	----	----	1.29	----	1.27	0.99	0.90	0.80	4.6	6.3
-----	0.72	0.79	0.90	1.09	----	1.03	.88	.74	.58	8.7	11.8
3----	----	----	.85	1.16	----	----	----	----	----	3.8	3.2
4----	.76	.81	.94	1.17	----	----	1.02	.96	.85	4.0	4.4
5----	.81	.99	----	----	----	----	----	----	----	4.6	6.6
2----	.84	.99	1.18	1.34	----	----	1.16	.99	.85	3.2	3.2
ver-											
ages	.78	.90	.97	1.21	----	1.15	1.01	.90	.77	---	----
epar-											
tures	+.04	+.08	+.08	+.04	----	+.03	+.02	+.04	+.03	---	----

* Extrapolated

TACUBAYA, D. F., MEXICO

Date	Sun's zenith distance: A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a.m.	1:30 p.m.
	Air mass: 3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83		
November										Mb.	Mb.
1----	0.50	0.74	0.79	0.83	----	1.42	1.24	1.02	0.98	7.6	6.8
2----	.55	.74	.96	1.17	----	1.52	1.19	1.10	.87	6.7	4.8
3----	.76	.79	.75	1.20	----	.90	----	----	----	6.4	6.7
4----	----	----	----	----	----	1.20	----	----	----	8.1	10.0
5----	.90	1.14	1.22	1.31	----	1.58	1.55	.97	.74	5.9	3.9
6----	.85	.99	1.10	1.11	----	1.39	1.20	1.04	.99	4.8	5.1
7----	.67	.77	1.14	.94	----	----	1.16	1.05	.65	4.3	2.4
8----	.83	1.05	.96	1.34	----	1.39	1.14	1.04	.95	3.9	5.4
9----	.63	.92	1.02	.68	----	1.33	1.15	1.02	.87	5.1	4.1
10----	.79	.93	1.17	.68	----	.95	.98	.63	.53	6.0	7.6
11----	.46	.59	.83	.98	----	----	----	----	----	6.8	8.1
12----	.62	.81	1.09	1.07	----	1.32	.87	----	----	6.9	8.0
13----	.89	.85	.90	1.07	----	----	----	----	.68	8.4	9.6
14----	.87	.93	.87	.99	----	1.12	----	----	.77	8.5	10.3
15----	.63	.84	.81	1.08	----	----	----	----	----	7.3	7.4
16----	.74	1.01	.67	.89	----	----	----	----	----	6.0	6.0
17----	----	----	----	.99	----	1.21	1.08	.99	.86	8.0	7.4
18----	.52	.70	.50	.77	----	1.41	1.25	1.02	.90	7.3	7.2
19----	.79	.95	1.16	1.23	----	1.21	1.11	.86	.74	6.0	7.2
21----	.89	1.11	1.30	1.41	----	1.33	.99	----	----	8.9	9.2
22----	.48	.66	.72	1.02	----	1.21	----	----	.67	7.4	8.0
23----	.46	.58	.68	.58	----	1.08	.95	.81	.71	6.3	6.3
24----	.63	.82	1.03	1.08	----	1.34	.87	.76	----	7.3	6.9
27----	.68	.89	.99	.94	----	1.36	1.32	1.20	.98	5.6	3.1
28----	.45	.61	.85	.92	----	1.40	1.20	1.01	.86	4.3	3.1
29----	----	----	----	.99	----	1.24	1.06	.78	.61	5.2	4.7
30----	----	.46	.70	1.06	----	.81	.55	.34	.26	6.0	7.2
Averages	.68	.83	.93	1.01	----	1.26	1.10	.92	.77	---	----
Departures	----	----	----	----	----	----	----	----	----	---	----

BLUE HILL, MASS.

	Air mass: 4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
November										Mb.	Mb.
1----	----	----	----	0.74	----	0.74	0.66	0.60	0.52	8.5	8.6
2----	0.65	0.74	0.89	----	----	----	----	----	----	14.9	14.8
6----	.82	.93	1.05	1.25	----	1.21	1.06	.93	.79	4.6	4.9
7----	.76	.85	.98	1.09	----	1.10	.94	.82	.72	8.6	10.8
10----	----	----	----	----	----	1.12	.92	.77	.68	13.5	4.8
12----	----	----	----	----	----	----	----	.87	.74	4.1	4.2
13----	.77	.87	1.03	1.23	----	----	----	----	----	3.3	2.6
14----	.75	.86	1.01	1.24	----	----	1.06	.95	.84	3.4	3.6
19----	.99	1.09	1.21	----	----	----	----	----	----	3.3	2.6
22----	----	----	----	1.31	----	----	1.15	.99	.89	2.7	2.6
Averages	.79	.89	1.03	1.14	----	1.04	.96	.85	.74	----	----
Departures	-.10	-.11	-.07	-.13	----	-.21	-.14	-.12	-.11	----	----

ALBUQUERQUE, NEW MEXICO

	Air mass: 4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08

No record

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.

An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

SOLAR RADIATION DATA

Table 31.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surf facing south at Blue Hill, Mass. during November 1950

Date----------	29	30	31	1	2	3	4	Aver-ages	5	6	7	8	9	10	11	Aver-ages	12	13	14	15	16	17	18	Aver-ages
Langleys--------	121	397	529	588	424	42	30	276	50	531	475	239	324	365	47	290	305	474	498	400	286	129	64	308
Date----------	19	20	21	22	23	24	25	Aver-ages	26	27	28	29	30	1	2	Aver-ages								
Langleys--------	494	86	14	530	170	26	22	192	64	71	95	210	203	304	397	192								

Table 32.-Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surf facing north at Blue Hill, Mass. during November 1950

Date----------	29	30	31	1	2	3	4	Aver-ages	5	6	7	8	9	10	11	Aver-ages	12	13	14	15	16	17	18	Aver-ages
Langleys--------	41	58	48	46	45	28	23	41	29	45	44	62	49	42	34	44	52	44	43	53	50	42	26	44
Date----------	19	20	21	22	23	24	25	Aver-ages	26	27	28	29	30	1	2	Aver-ages								
Langleys--------	46	42	12	47	46	18	--	35	--	33	32	44	47	44	40	40								

Note.—Langley is the unit used to denote one gram calorie per square centimeter.

SOLAR RADIATION DATA

Table 33.-Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. NOVEMBER 1950

1950	Honolulu, T.H.	Pearl Harbor, T.H.	Brownsville, Texas	Gainesville, Fla.	Apalachicola, Fla.	Lake Charles, La.	El Paso, Texas	Fort Worth, Texas	Charleston, S.C.	Griffin, Ga.	Phoenix, Ariz.	Riverside, Calif.	Santa Maria, Calif.	Albuquerque, N.M.	Inyokern, Calif.	Hatteras, N.C.	Raleigh, N.C.	Oak Ridge, Tenn.	Las Vegas, Nev.	Nashville, Tenn.	Stillwater, Okla.	Fresno, Calif.	Davis, Calif.	Washington, D.C. *	Ely, Nev.	Seabrook, N.J.	Indianapolis, Ind.	Grand Lake, Colo.	Salt Lake City, Utah	New York, N.Y.	Sayville, N.Y.	State College, Pa.	Lincoln, Nebr.
October 29---	409	388	464	322	430	374	420	433	340	390	360	293	432	446	---	399	334	232	409	243	372	336	251	285	386	284	208	---	346	241	281	270	300
October 30---	560	543	483	404	416	435	477	431	(393)	395	453	311	104	417	---	365	358	329	396	299	375	332	239	336	354	299	303	(186)	215	256	303	229	346
October 31---	583	489	484	404	433	445	460	(425)	403	394	449	295	417	411	---	376	370	335	376	333	363	310	220	318	289	287	315	368	142	228	322	234	323
November 1---	550	501	496	402	437	447	470	387	(397)	330	390	338	421	410	413	378	327	332	363	335	328	309	300	333	210	311	321	(134)	119	222	259	314	310
November 2---	503	540	470	371	443	427	428	332	(392)	320	418	330	409	350	400	369	335	207	376	12	161	306	333	310	263	295	110	191	178	222	284	130	155
November 3---	534	502	167	320	379	171	453	(76)	(361)	232	418	323	405	375	402	344	303	94	386	28	46	303	336	260	363	250	72	(299)	308	244	234	40	139
November 4---	551	503	540	197	315	441	463	451	(260)	57	433	333	412	405	401	255	139	43	394	52	374	317	325	164	366	226	148	206	313	53	63	62	230
Averages------	527	495	443	346	408	391	453	(362)	(363)	303	417	318	371	402	404	355	309	224	386	186	288	316	286	287	319	279	211	(230)	232	209	249	183	258
Departures----	+16	+24	---	+20	---	+9	-2	-29	---	---	-9	+4	+6	-6	-10	---	---	-10	+27	-27	---	-8	-4	---	---	+24	---	-24	-19	+6	+8	+5	+26
November 5---	494	500	507	445	474	443	461	429	(252)	423	427	323	397	414	394	248	221	364	386	370	376	221	297	218	354	110	304	207	270	260	143	133	309
November 6---	365	470	480	422	461	378	457	415	419	407	423	308	390	386	395	394	381	349	376	339	342	109	302	342	304	330	314	98	83	173	302	246	254
November 7---	526	437	353	369	445	251	443	365	401	401	402	293	370	378	382	384	349	300	339	211	254	169	310	244	261	285	156	137	216	261	308	261	142
November 8---	504	476	479	371	426	438	438	346	204	396	423	291	(377)	390	390	354	310	126	373	53	272	313	312	153	354	253	85	35	101	226	227	172	34
November 9---	536	364	363	411	438	347	439	(400)	367	363	388	297	213	384	380	372	338	98	347	19	365	149	331	*277	360	305	110	(316)	301	200	293	138	184
November 10---	532	443	250	380	438	177	381	404	374	175	448	347	402	418	414	345	289	49	392	178	372	199	296	*263	335	255	89	(347)	249	206	237	251	314
November 11---	431	406	240	244	354	420	431	432	328	110	430	339	400	397	409	58	18	289	379	346	320	39	287	*169	346	68	307	(243)	236	243	45	217	252
Averages------	484	442	382	377	434	351	436	(399)	(335)	325	420	314	(364)	395	395	308	272	225	370	217	329	171	305	238	331	230	195	(198)	208	224	222	203	213
Departures----	+16	-6	---	+38	---	-1	+2	+39	---	---	+22	+14	+39	+15	+19	---	---	-3	+13	+8	---	-115	+40	---	---	-16	-8	-11	+13	+42	-10	+46	-10
November 12---	321	487	238	217	378	434	432	422	78	371	426	269	268	403	324	54	354	315	334	335	333	215	83	*246	103	248	206	192	93	234	260	243	174
November 13---	398	445	97	205	373	384	408	(387)	394	383	302	116	66	268	226	351	350	265	302	288	325	191	157	*198	120	217	229	300	116	71	227	216	253
November 14---	432	368	338	319	296	315	395	111	343	368	164	147	276	321	364	347	334	297	303	288	158	287	198	*298	119	268	267	178	36	135	269	298	208
November 15---	384	418	362	324	385	303	420	(302)	269	250	389	314	324	368	362	334	316	206	355	144	226	97	166	*271	363	263	96	210	260	191	261	225	218
November 16---	198	242	407	297	363	66	415	(389)	312	195	366	266	176	298	379	315	211	37	322	235	339	246	50	*196	319	237	233	304	115	42	236	104	298
November 17---	438	439	286	182	304	369	406	236	172	351	372	237	256	352	306	101	273	319	291	336	204	218	58	*233	297	207	294	202	72	82	207	42	216
November 18---	459	476	397	---	428	343	388	121	380	339	331	56	43	280	197	335	353	219	206	176	191	276	64	*285	52	264	156	92	43	15	196	277	266
Averages------	376	411	303	257	362	316	409	(281)	278	322	336	201	201	327	309	262	313	237	302	257	254	219	111	247	196	243	212	211	105	90	236	201	233
Departures----	-44	-4	---	-3	---	-8	-1	-50	---	---	-26	-73	-60	-18	-26	---	---	+20	-20	+40	---	-28	-91	---	---	+18	+28	+15	-69	-61	+38	+33	+24
November 19---	468	421	445	---	388	314	(379)	308	320	276	344	---	80	196	261	283	140	47	304	163	279	119	136	*172	216	239	31	81	167	178	263	158	97
November 20---	401	328	321	311	369	241	391	396	326	148	346	---	168	346	327	226	128	32	298	85	331	60	46	*75	111	103	85	(156)	33	83	69	26	308
November 21---	423	369	323	443	436	412	386	367	(361)	375	363	293	341	348	329	340	356	311	311	321	299	154	207	*262	209	240	169	69	129	22	83	126	228
November 22---	457	395	336	373	415	175	388	364	313	182	358	296	349	349	344	198	128	70	329	84	244	(109)	275	*223	315	242	145	179	234	104	175	68	199
November 23---	498	450	237	235	399	340	396	331	344	332	356	301	334	360	338	305	317	307	324	284	215	80	236	*247	295	221	75	214	238	133	41	51	287
November 24---	381	394	113	81	88	327	(390)	397	191	132	370	241	345	360	335	284	241	103	313	246	325	275	244	*139	275	192	170	280	221	176	61	49	140
November 25---	479	417	430	402	429	381	374	370	349	372	363	284	337	340	341	49	117	305	318	199	278	93	147	*54	281	37	149	---	205	76	5	17	272
Averages------	444	396	315	308	361	313	(386)	362	315	259	357	283	279	329	325	241	204	168	314	197	282	127	185	167	243	182	118	(163)	175	110	99	71	219
Departures----	+55	+33	---	+53	---	+2	-2	+35	---	---	+15	+9	+21	+1	+19	---	---	-5	+8	+14	---	-103	-40	---	---	-13	-29	-28	+21	-32	-40	-53	+23
November 26---	465	382	432	340	331	379	382	364	350	321	361	286	319	342	335	289	338	74	317	43	300	8	13	*206	284	196	88	191	211	74	62	116	264
November 27---	438	393	395	378	406	363	380	336	342	340	356	284	315	343	---	251	281	53	317	79	257	245	103	*229	273	170	158	(286)	107	14	166	96	259
November 28---	346	241	423	382	405	340	377	325	323	347	349	288	332	340	---	276	270	72	315	63	270	46	197	226	267	118	221	(274)	185	207	27	216	242
November 29---	372	335	426	351	392	287	381	310	329	351	349	272	331	332	327	284	288	238	318	168	251	115	77	178	268	156	113	(265)	46	221	118	103	107
November 30---	81	92	402	300	241	322	376	342	299	89	346	176	114	336	101	287	214	224	215	211	244	150	149	148	63	201	252	135	28	43	116	182	109
December 1---	235	216	256	273	323	225	322	312	276	136	130	182	193	286	299	298	309	37	291	135	263	266	254	252	229	212	72	198	88	56	212	206	112
December 2---	103	92	364	168	261	185	375	125	263	236	344	178	291	310	271	261	188	138	278	119	269	254	48	125	231	167	72	238	203	187	136	33	72
Averages------	291	250	385	313	337	300	370	303	312	260	319	238	271	327	266	278	270	119	293	117	265	155	120	195	231	174	139	(227)	124	115	120	136	167
Departures----	-62	-64	---	+56	---	-23	+8	+11	---	---	+4	-15	+6	+1	-19	---	---	-45	+6	-46	---	-46	-59	---	---	-11	-11	+27	-32	-13	-14	+5	-14

Accumulated Departures January 1 to December 2, 1950

	-238	+399	---	+4417	---	---	---	---	---	---	---	-4214	---	---	---	---	---	---	---	-1113	---	+0094	-6370	---	---	---	---	---	-6405	---	-4004	+2947

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Table 33.-Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. (Continued) NOVEMBER 1950

	Upton, N. Y.	Cleveland, Ohio	Newport, R. I.	Put-in-Bay, Ohio	East Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Medford, Ore.	Amherst, Mass.	Lynn, Mass.	Ithaca, N. Y.	Albany, N. Y.	Lander, Wyo.	East Lansing, Mich.	Madison, Wis.	Boise, Idaho	Portland, Me.	Toronto, Ont.	Rapid City, S. D.	Ottawa, Ont.	St. Cloud, Minn.	North Head, Wash.	Sault Ste.Marie, Mich.	Bismarck, N. D.	Caribou, Me.	Great Falls, Mont.	Spokane, Wash.	Seattle (Un.of Wash) Wash.	Glasgow, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska	Aklavik, MacKenzie
1950																																	
October 29---	267	206	277	224	259	145	64	74	92	130	161		224	205	297	45	93	211	---	183	270	58		287	20	187	54	62	164	215	91	28	25
October 30---	291	307	243	326	219	296	214	226	164	241	280		316	240	270	135	267	235	243	204	275	86		253	46	114	129	82	204	226	44	40	73
October 31---	---	269	316	266	316	334	260	62	305	300	290		226	183	242	---	325	216	215	281	266	112		131	147	142	247	150	114	121	69	68	47
November 1---	238	293	255	306	246	270	180	144	246	245	276		283	246	187	46	299	231	283	245	60	43		283	265	74	42	16	207	116	123	(35)	19
November 2---	271	49	277	118	276	271	182	189	272	211	111		178	104	189	206	307	142	112	171	143	52		52	202	289	103	55	145	76	186	41	17
November 3---	234	13	187	104	177	76	28	252	38	77	70		350	47	149	216	118	88	351	155	91	168		285	116	218	67	204	195	141	66	32	14
November 4---	(58)	8	52	42	85	49	5	263	60	39	14		316	47	224	275	70	17	290	56	204	63		173	12	170	243	92	146	35	53	55	18
Averages------	(227)	164	230	198	226	206	133	173	162	178	172		270	153	223	154	211	163	249	185	187	83		209	115	171	127	95	168	133	90	(42)	30
Departures----	+6	---	+17	+4	+24	-1	-24	-4	---	+4	+9		-6	+12	+40	---	+8	+24	---	+28	-12	---		---	-15	-23	-20	---	---	-6	-19	-3	-13
November 5----	(132)	168	71	207	---	77	64	231	130	79	71		269	98	221	---	107	156	248	99	261	94		241	24	263	189	104	200	76	128	33	53
November 6---	280	286	302	314	313	308	259	173	290	261	168		215	209	270	76	329	174	190	72	108	98		183	228	264	214	49	99	61	116	25	24
November 7---	275	238	270	205	279	274	270	141	251	221	218		204	53	220	43	288	102	102	122	178	62		171	178	48	77	67	154	57	91	37	36
November 8---	281	34	270	61	228	213	202	214	149	176	107		160	79	45	272	125	23	---	86	129	244		114	43	116	262	198	193	64	85	43	19
November 9---	268	43	131	147	223	216	161	305	90	75	103		347	10	79	273	129	18	---	47	161	250		178	52	288	247	208	204	156	150	49	36
November 10---	223	79	212	99	196	228	219	275	260	200	76		248	79	112	196	229	84	251	204	138	208		266	161	114	109	133	68	124	84	35	16
November 11---	35	244	50	274	44	82	86	266	111	78	97		291	132	221	125	159	184	85	140	196	58		281	190	95	64	49	89	128	156	20	13
Averages------	(213)	146	187	187	214	200	180	229	183	156	120		248	94	167	164	195	106	175	110	167	145		205	125	170	166	115	144	95	116	35	28
Departures----	-4	---	-10	+20	+38	+18	+36	+47	---	-3	-16		-8	-12	+7	+13	-5	00	---	---	-6	---		---	+8	-6	+19	---	---	-14	+9	00	+4
November 12---	226	241	258	243	192	220	193	82	209	157	198		228	127	173	212	187	133	104	140	236	225		77	221	273	225	203	240	150	147	24	8
November 13---	218	106	262	96	255	271	245	112	261	160	137		252	63	245	137	267	157	262	72	262	68		255	145	244	38	71	230	183	132	27	18
November 14---	235	264	264	297	259	268	267	166	256	199	156		254	150	183	82	291	196	225	169	162	93		223	129	182	200	117	200	161	38	52	10
November 15---	233	66	262	73	232	250	241	84	235	196	182		294	15	95	122	235	43	226	30	53	42		48	141	225	85	22	222	42	79	46	9
November 16----	(221)	118	194	187	219	197	187	69	117	151	68		317	54	57	70	140	46	208	23	138	124		117	11	109	107	86	163	106	44	60	16
November 17---	192	26	105	135	65	133	125	96	174	118	49		240	182	215	67	188	68	219	61	131	119		237	33	158	46	78	184	45	147	35	4
November 18---	187	204	68	161	52	71	46	71	119	39	227		211	101	210	---	88	182	165	201	207	79		83	31	170	190	105	179	104	141	45	10
Averages------	(216)	147	202	170	182	202	186	97	196	146	146		257	99	168	115	200	118	201	99	170	107		149	102	194	127	97	204	113	104	41	11
Departures----	+31	---	+19	+18	+8	+37	+43	-35	---	+11	+27		+19	-5	+16	-31	+8	+11	+5	---	-5	---		---	-13	+13	-12	---	---	+4	-7	+13	-3
November 19----	(243)	20	248	47	250	257	229	140	135	202	186		131	8	46	223	277	84	102	172	194	186		240	202	255	230	131	147	168	139	43	5
November 20---	90	24	105	56	111	114	97	86	56	75	31		227	32	248	45	104	35	197	17	242	71		187	43	114	171	81	118	139	102	47	15
November 21---	81	54	23	98	---	21	33	58	57	24	45		248	54	235	217	75	139	239	92	233	78		193	11	135	213	145	79	120	113	6	5
November 22---	164	121	255	189	---	257	261	60	259	222	123		196	61	86	208	275	174	170	117	118	---		69	132	141	112	28	110	86	155	(11)	4
November 23---	40	177	70	199	129	149	63	142	136	140	38		241	62	227	206	219	119	255	151	188	31		203	198	205	107	34	209	113	120	25	4
November 24---	38	103	75	153	50	40	59	193	51	---	54		178	192	203	172	180	10	161	48	203	53		118	194	155	67	64	111	82	125	18	3
November 25---	9	41	29	38	50	29	26	67	49	---	42		120	35	245	193	69	22	70	17	162	36		190	146	148	54	51	63	95	76	16	8
Averages------	(95)	77	115	111	118	124	110	106	120	133	74		191	63	184	181	171	83	171	88	192	76		172	132	165	136	76	120	115	119	(24)	6
Departures----	-33	---	-37	-5	-20	-21	+5	+3	---	-19	-38		-20	-22	+54	---	-1	-3	-9	---	+15	---		---	+23	-2	+12	---	---	+3	+12	+7	-1
November 26----	(59)	125	52	105	65	71	59	166	113	---	---		198	119	44	178	74	45	209	---	238	21		178	59	110	121	56	127	149	83	11	6
November 27----	113	145	103	216	101	90	70	221	168	---	119		162	100	177	172	137	62	---	---	235	167		212	25	151	125	92	172	89	41	4	3
November 28----	39	88	84	118	89	78	55	69	62	---	36		227	117	89	151	89	87	219	---	133	112		209	22	165	151	64	167	79	60	6	3
November 29----	123	33	99	49	128	151	118	29	154	36	37		184	21	102	118	102	32	96	---	145	66		195	113	98	61	56	104	99	105	7	2
November 30----	92	103	55	130	73	143	131	135	87	122	44		203	78	228	157	196	58	177	---	192	36		114	113	111	35	13	59	165	100	8	4
December 1----	204	201	222	228	183	192	129	75	100	122	97		224	113	103	46	159	160	171	---	98	73		56	80	172	109	95	165	35	95	7	2
December 2----	119	122	191	163	209	196	183	36	155	179	37		236	27	63	134	256	13	---	---	41	33		161	139	186	83	54	180	109	102	8	2
Averages------	(107)	117	115	144	121	132	106	103	120	115	62		205	82	115	137	145	65	174	---	155	23		161	68	142	98	62	139	104	84	7	3
Departures----	-20	---	-36	+27	-13	-14	+9	-11	---	-3	-31		+9	-7	-13	---	-10	-29	---	---	-8	---		---	-36	-3	-18	---	---	-6	-5	-4	-1

Accumulated Departures January 1 to December 2, 1950

	---	---	-3640	+5880	-5481	+3122	+2457	---	---	---	---		---	+371	+5495	---	---	-1442	---	---	---	---		---	---	---	---	---	---	---	---	40822	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, November 1950

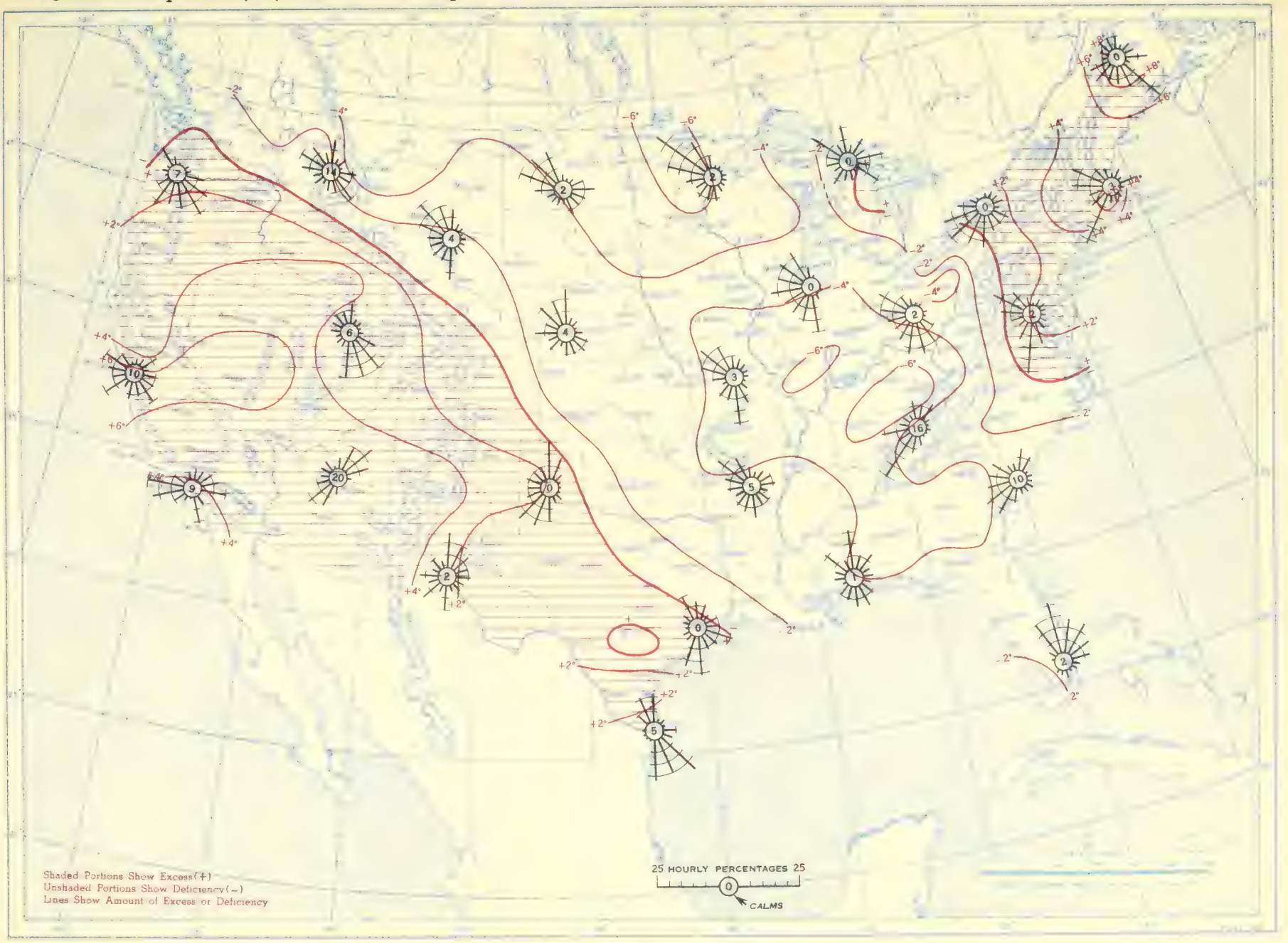


Chart II. Tracks of Centers of Anticyclones, November 1950. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Figure above circle indicates date, and figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Square indicates position of stationary center for period shown. Only those centers which could be identified for 24 hours or more are included.

Chart III. Tracks of Centers of Cyclones, November 1950. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time). Figure above circle indicates date, and figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Square indicates position of stationary center for period shown. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, November 1950

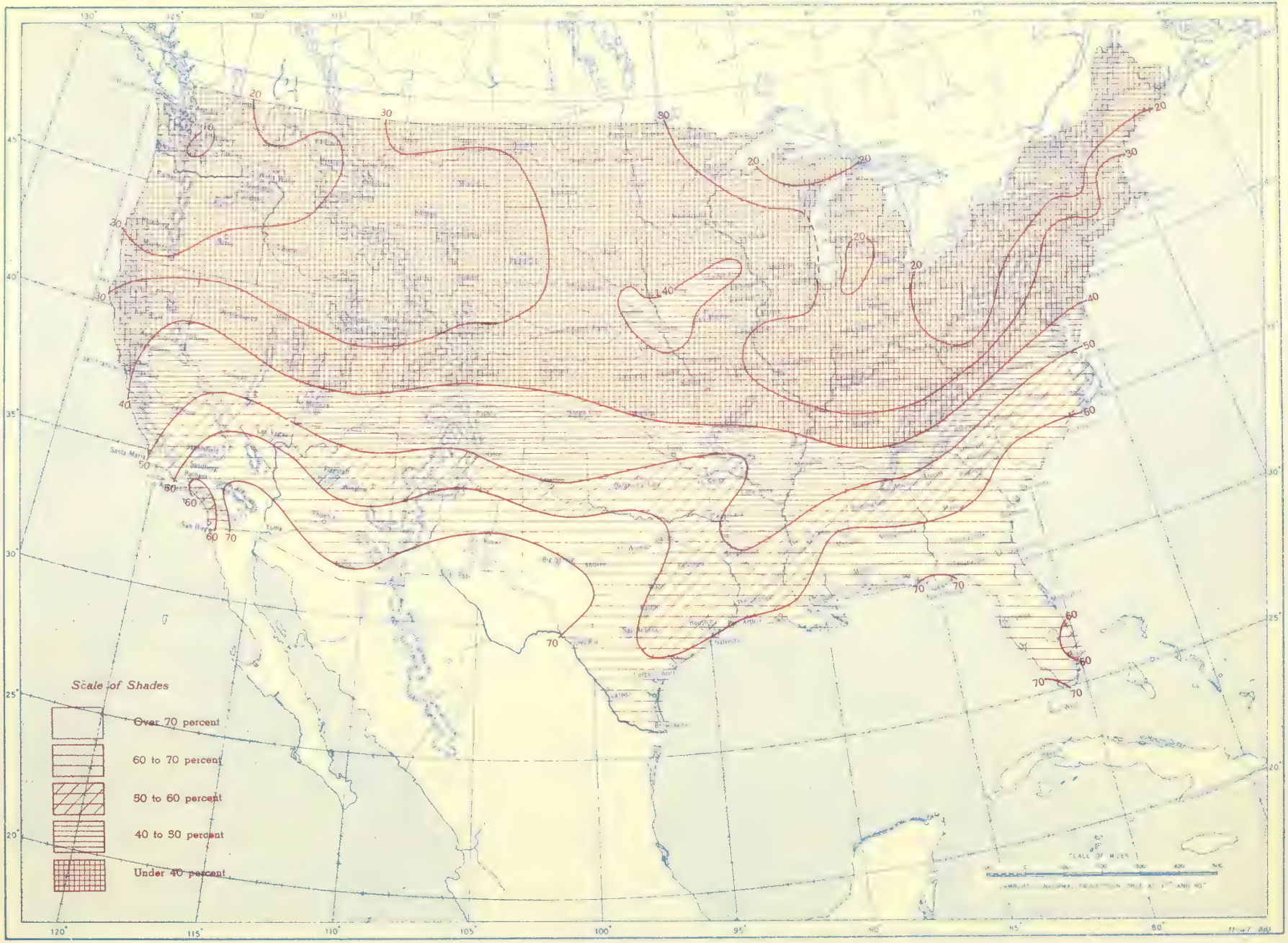


Chart V. Total Precipitation, Inches, November 1950. (Inset) Departure of Precipitation from Normal

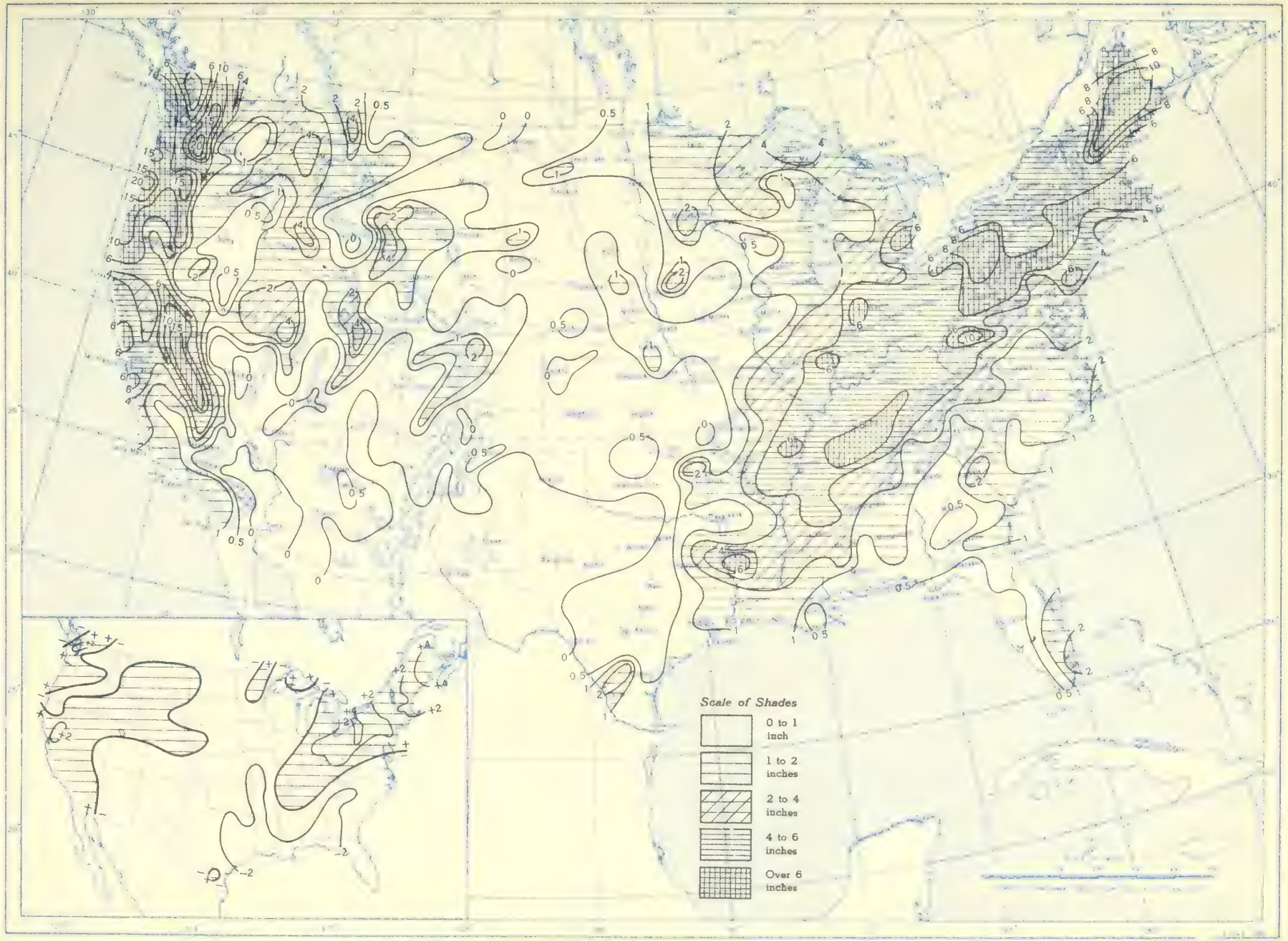


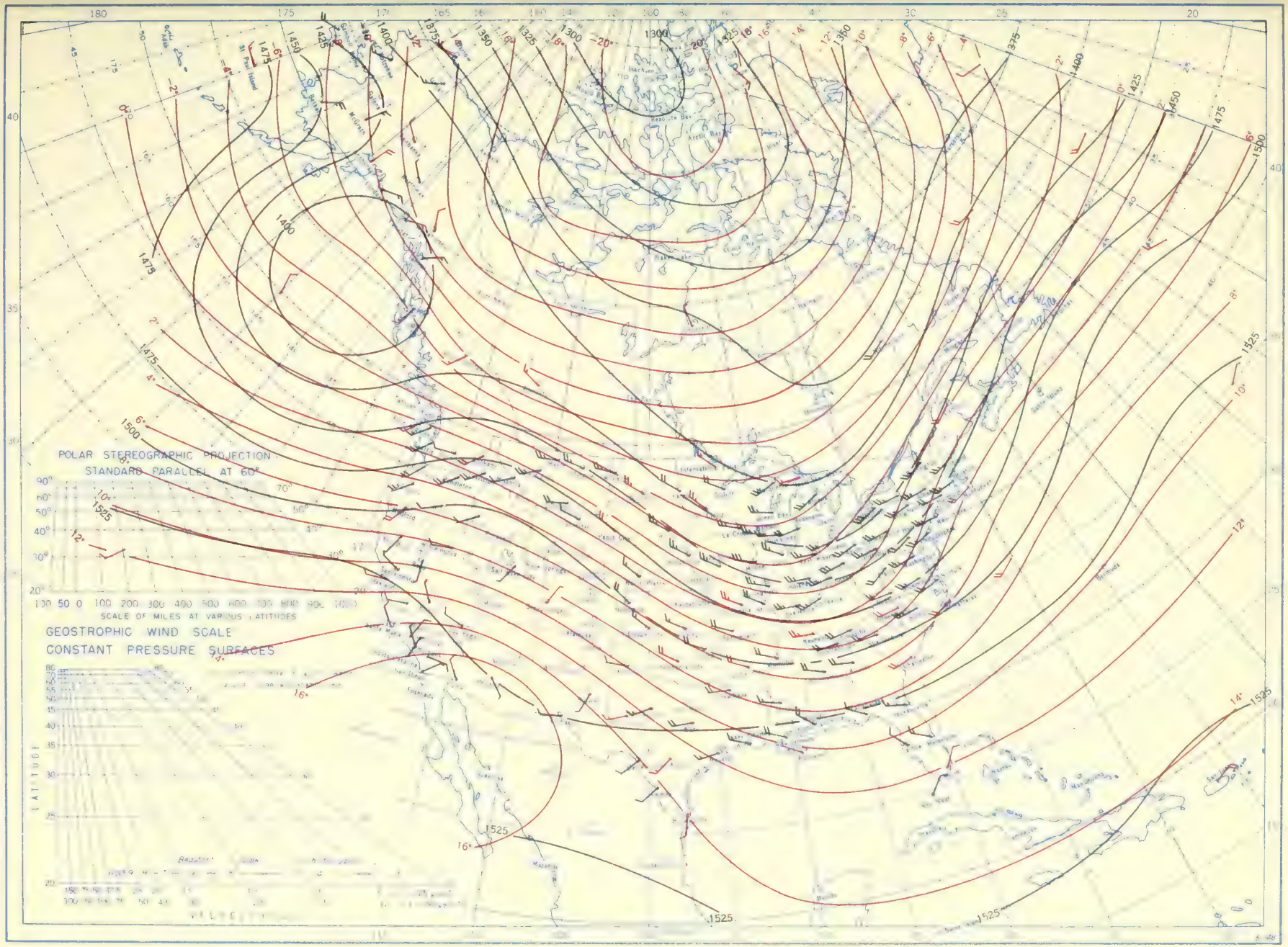
Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., November 1950



Chart VII. Total Snowfall, Inches, November 1950.

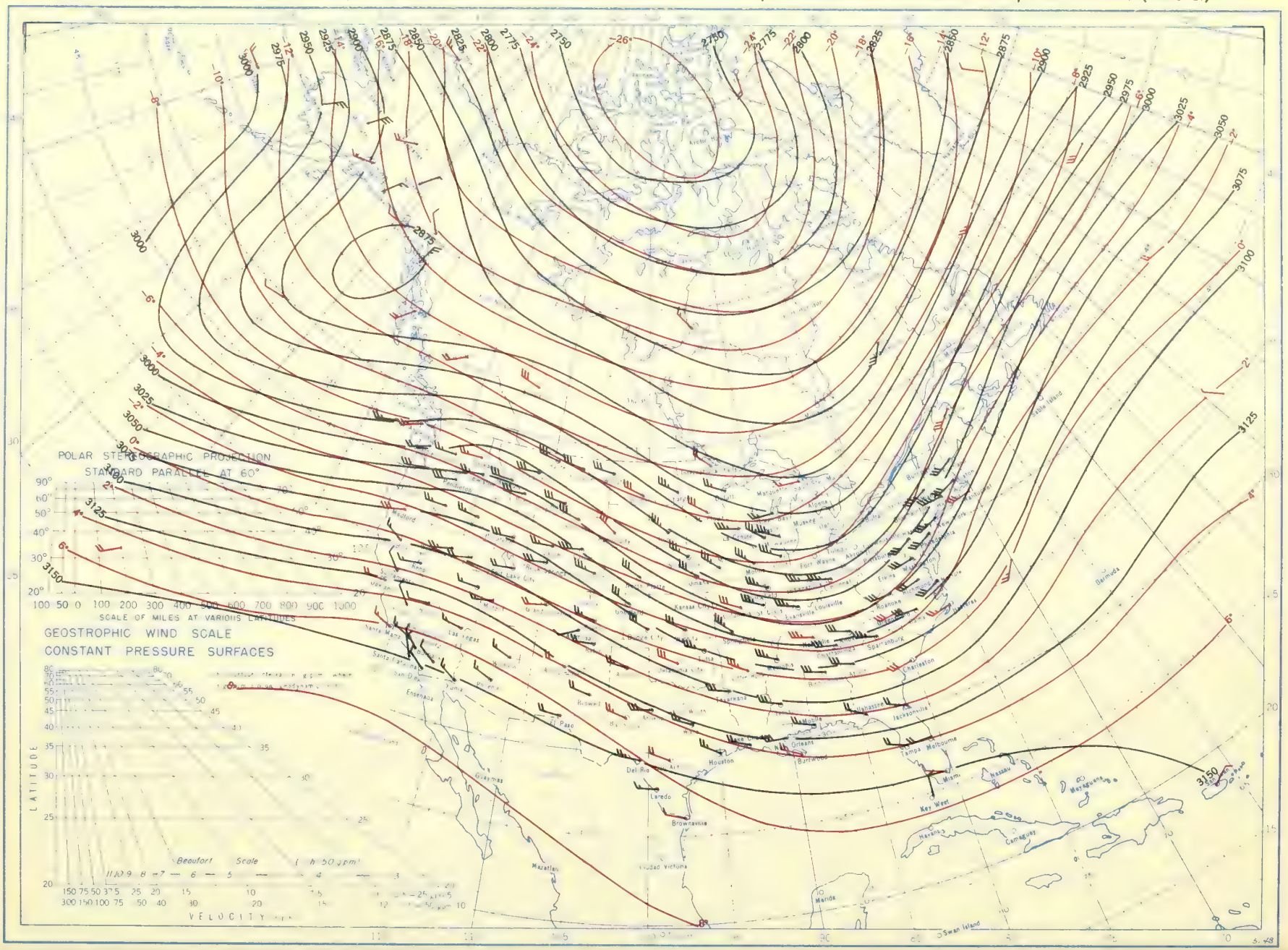


Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m. s. l.)



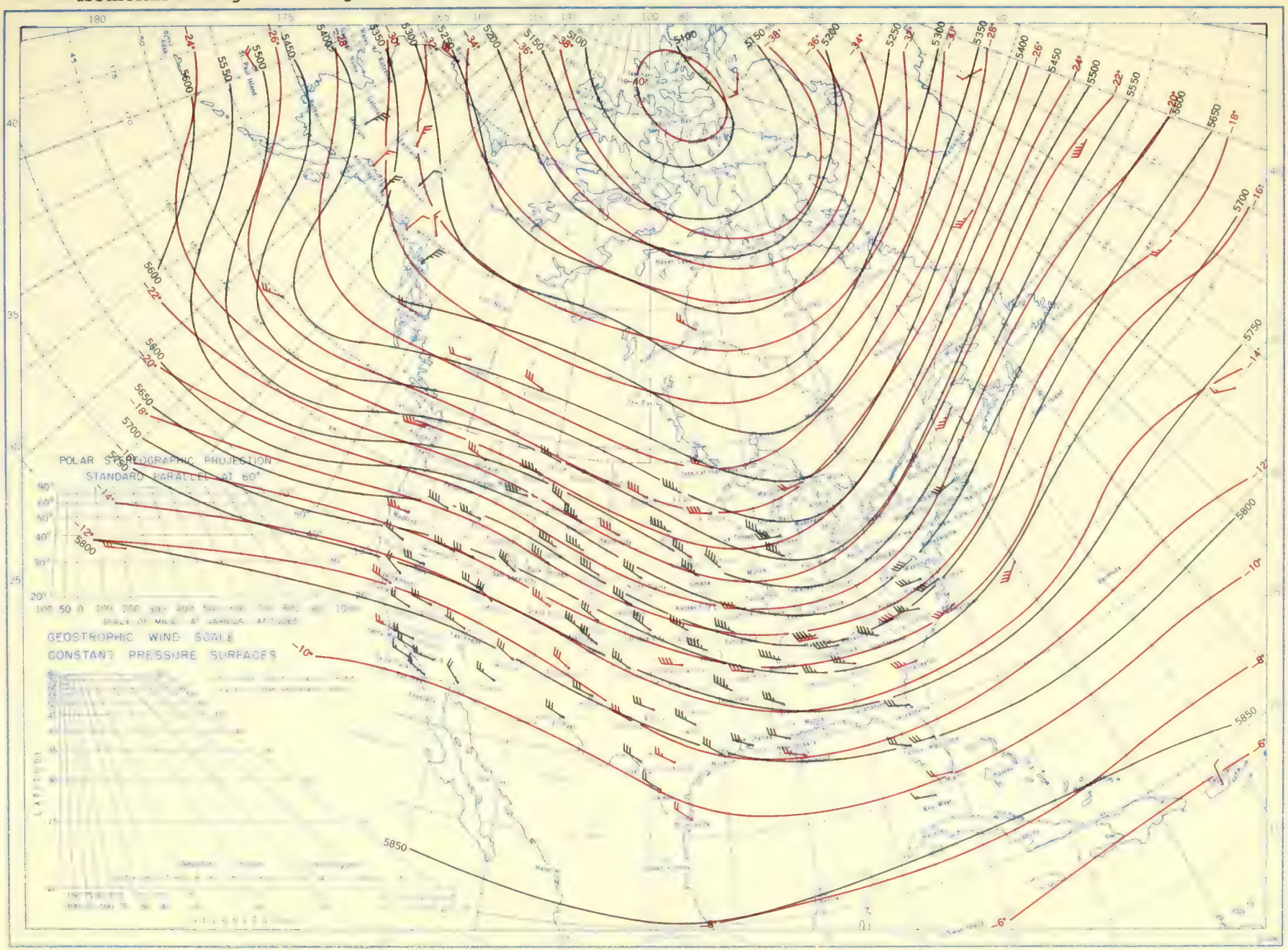
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart IX, November 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)



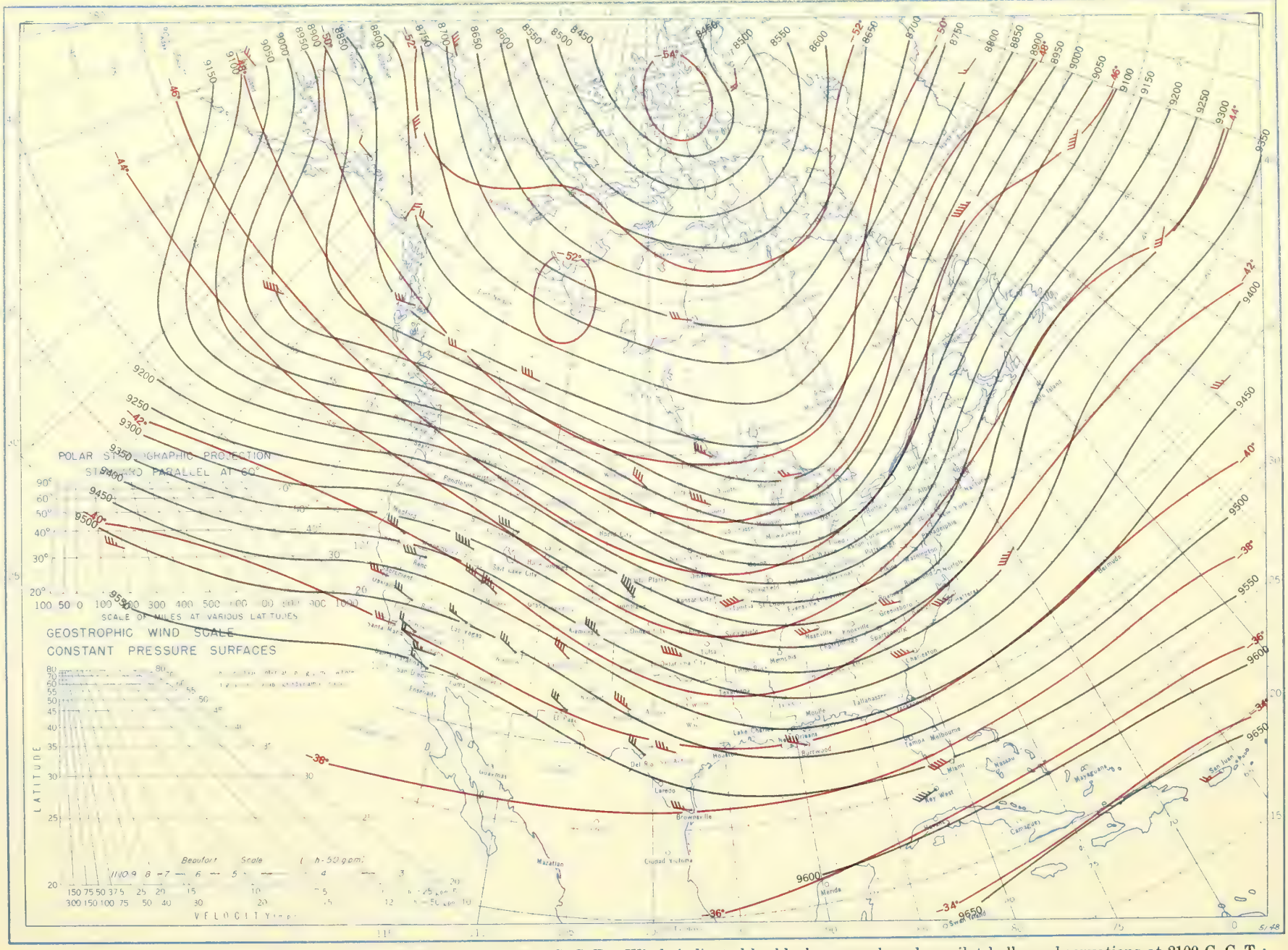
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.

Chart X, November 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, November 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

DECEMBER 1950
Volume 1 No. 12

WASHINGTON: 1950

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NOTE.--This publication contains all of the climatic data formerly printed in the MONTHLY WEATHER REVIEW.

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U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 1 No. 12

DECEMBER 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

December 1950, like the preceding November, was somewhat colder and drier than usual. The average temperature for the entire country of 33.1° was 1.2° lower and the average precipitation of 1.81 inches was 0.44 inch lower than the long-term means. The temperature and precipitation departure patterns for the 2 months also showed striking similarities, but the great number of extraordinary extremes that featured November weather were lacking in December.

Temperatures averaged above normal in the western half of the country and the extreme Northeast, with departures in both areas ranging up to 10°. From the northern Great Plains and Great Lakes southeastward, a course followed by most of the cold air masses which crossed the country, prolonged cold periods occurred and temperatures averaged below normal with departures generally ranging between 5° and 8°. Average temperatures for the month ranged from 2° at Pembina, N. Dak., to 68° at Key West, Fla., and extremes ranged from -39° at Belcourt Indian Reservation in North Dakota on the 26th to 95° recorded at McAllen, Texas on the 1st.

Precipitation totals were above normal from the Lake Region to the Atlantic Coast, in northern sections west of the Continental Divide, and in scattered areas of the Southeast. Elsewhere, totals were below normal, particularly in central and southwestern areas of the country. The greatest monthly total, 28.05 inches, was recorded at Naselle, Wash., and the greatest 1-day measurement, 7.56 inches, was reported from Cayadero, Calif., on the 3d.

This was one of the warmest Decembers on record west of the Great Plains. State average temperatures for the month were the highest of record for California and Arizona, and near the record for New Mexico, Utah, Nevada, and Oregon. The region west of the Rockies was almost continuously under the influence of relatively warm air from the Pacific, and temperatures were above normal on all except a few days. This resulted in low monthly temperature ranges and few extremes.

In some portions of the far West prolonged periods of fog and low overcast skies were the most unusual features of the month's weather. Stations along the southern California Coast and in central and northern portions of the Great Basin, such as San Diego, Calif., Reno, Nev., and Boise, Idaho reported this December the foggiest on record. At Salt Lake City, Utah there were no clear days during the month; the number of cloudy days, 28, was a December record; and the percentage of possible sunshine, 12 percent, was the lowest for any month. In parts of northern Utah and southern Idaho fog and drizzle froze on power and communication lines to a thickness of 2 1/2 inches in some areas, causing considerable disruption of services. In the Columbia River Basin of Oregon east of the Cascades, freezing light rain from the 5th to the 7th formed a heavy coating of ice that damaged trees and shrubs and power and communication lines.

Heavy rains again caused damaging floods in California. Damage from floods along the Smith and Eel Rivers in the north-central on the 2d and 3d was not estimated, but was less than that of the October floods. Damage along the Russian River was estimated at $530,000, and in the San Francisco-Pajaro areas at $125,000. In the lower Sacramento River, floods on about the same scale as during the previous October, caused $600,000 damage. In the Merced Basin damage was mostly to agricultural lands and was estimated at $1,000,000.

East of the Rockies a cold wave during the first week moved through the Great Plains establishing early season low temperature records at scattered stations from Nebraska to southern Texas. Temperatures were as low as -17° in Nebraska, -14° in Kansas, -7° in Oklahoma, and -4° in Texas. Freezing occurred in southern Texas, ending the fall vegetable crop unusually early. Frequent cold waves during the last half of the month brought the lowest temperatures of the month to the Southeastern States from about the 18th to the 20th. On the mornings of the 19th and 20th below-freezing minima were general over the northern half of the Florida Peninsula, and were recorded in the interior as far south as Homestead in Dade County. Temperatures in north-central areas fell to their lowest levels of the month at the time of a cold wave on the 26th and 27th. On the 27th Illinois' all-time December low temperature of -29° was equaled at Freeport, and lows of -36° were recorded in Wisconsin and Iowa, and -23° in Ohio. On the 26th, -22° was recorded in Michigan, and -29° in South Dakota.

The lack of precipitation was most serious in the Southwest and Great Plains where totals had been much below normal for several weeks previous to December, and small grains were deteriorating in many areas, and water shortages had developed in the Southwest. This was the driest December on record in Missouri, the second driest in New Mexico, and the third driest in Texas. The 2-month period, November-December was the driest on record in Nebraska, and the 3-month period October-December was the driest on record in Oklahoma. In Kansas the drought had continued since the first week in October, with only 6 stations recording over 1/4 inch during December.

Due to the cold weather in the East much of the frequent precipitation in northern areas fell as snow which was especially heavy in the upper Mississippi Valley. The month's average snowfall in Wisconsin was exceeded only in January 1929, and Minnesota's was the second largest for December. At Duluth, Minn., 35.2 inches of snow fell from the 5th to the 8th, 23.2 inches falling during a 24-hour period on the 6th; a depth of 29 inches at this station on the 7th was the maximum depth for the State during the month. Land O' Lakes, Wis., measured a depth of 44 inches on the 10th and 11th and Calumet, Mich., 46 inches on the 9th

and 10th. A few stations in these States recorded snowfall every day during the month.

In the Northeast monthly snowfall totals ranged up to more than 2 feet at a few stations. Watertown, N. Y. recorded a monthly total of 59.2 inches. One-day measurements ranged up to about 18 inches in New York and about a foot in New England. Snowfall for the month was a little below normal, however, in New England, but exceeded the normal by 5 inches in New York. The heaviest snowfall in the Northeast occurred in Jefferson and Lewis Counties, N. Y. at the east end of Lake Ontario. From the 12th to the 14th during a series of storms from the Lake more than 2 feet fell in the Tug Hill area, depths up to 40 inches were unofficially reported in the Pierrepont Manor area, and unofficial reports in other areas told of 5 to 6 inches of snow falling within a 90-minute period. During another storm in Jefferson County on the 17th and 18th State Police reported that 10 inches of snow fell at Adams Center in 1 hour.

West of the Great Plains snowfall was generally below normal, especially in southern areas. Average snowfall in Nevada was only 28 percent of normal, the least in 10 years. Heavy snowfall was generally limited to the Sierra Nevada, Cascade, and northern Rocky Mountain Ranges. Soda Springs, Calif., reported a monthly total of 29 inches; Crater Lake, Oreg., 93; and Summit, Mont., 39.8 inches.

The most severe local storms during the month occurred in St. Louis and vicinity during a frontal passage on the afternoon of the 2d. Hail caused $4,000,000 damage, mostly in St. Louis. This is the most damaging hailstorm ever to occur in a large city, and also the worst ever to occur during a winter month. Tornadoes occurred in nearby counties of Illinois, causing over one-half million dollars damage, at least 3 deaths, and a number of injuries.

CONDENSED CLIMATOLOGICAL SUMMARY

Table 1

DECEMBER 1950

Section	Temperature								Precipitation					
	Average	Departure from normal	Monthly extremes						Average	Departure from normal	Monthly extremes			
			Station	Highest	Date	Station	Lowest	Date			Station	Greatest	Station	Least
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	42.3	-5.3	Brewton 3SSE	82	2	Valley Head	7	19	4.06	-1.20	Citronelle	7.63	Monte Sano	1.62
Arizona	48.2	+5.9	6 stations	89	†10	Alpine	-4	6	.03	-1.27	Bright Angel R.S.	.87	90 stations	.00
Arkansas	38.6	-4.2	Grannis	81	1	Lead Hill	-8	7	1.25	-2.94	Arkansas City	5.31	Cove	.00
California	50.4	+4.8	2 stations	93	10	Twin Lakes	7	2	4.19	+.52	Camptonville R.S.	21.15	53 stations	.00
Colorado	31.0	+5.8	Eversoll Ranch	77	25	Taylor Park	-34	6	.63	-.24	Climax	6.51	6 stations	.00
Florida	56.8	-3.2	Pompano Beach	87	2	Secotan	18	19	2.86	+.07	Tampa WB AP	6.66	Okeechobee 9W	.35
Georgia	43.7	-4.6	Cordele	81	3	Blairsville Exp. Sta.	5	†19	3.99	-.14	Hawkinsville	6.27	Camp Stewart	1.17
Idaho	32.4	+6.1	Hollister	61	10	Island Park Dam	-18	5	2.11	+.15	Clark Fork 1ENE	6.47	Grouse	.18
Illinois	23.3	-7.9	Harrisburg	74	2	Freeport	-29	27	1.45	-.70	Nashville 3NW	3.43	Jacksonville Sew.Pl.	.27
Indiana	24.2	-7.5	Evansville	73	2	Hobart	-19	27	2.30	-.42	New Castle	3.54	Whiting	1.12
Iowa	18.8	-5.6	Clarinda	62	23	Saratoga 2E	-34	27	.75	-.34	Lansing	2.33	Bartlett 3E	T
Kansas	33.9	+1.0	4 stations	78	†25	Goodland	-14	6	.06	-.79	Belleville	.31	21 stations	.00
Kentucky	32.1	-5.6	Princeton	74	2	Mammoth Cave Park	1	19	2.38	-1.40	Haleys Mill	4.48	Vanceburg Dam 32	1.49
Louisiana	49.3	-2.6	Grand Isle	68	3	Logansport	9	7	4.62	-.73	New Iberia	11.05	Mosston	.09
Maryland-Delaware	33.0	-2.3	Waldorf Police Bar.	73	3	Oakland	-17	27	3.26	+.09	Benson Police Bar.,Md.	6.44	Del.City,Ruby Pt,Del.	1.65
Michigan	21.5	-3.2	Benton Harbor	55	2	Dunbar Forest	-22	26	2.32	+.39	Deer Park State For.	5.09	Millington 3SW	.58
Minnesota	9.0	-6.3	Beardsley	46	24	3 stations	-34	†26	1.20	+.44	Duluth WB Airport	3.69	Tyler	.10
Mississippi	43.8	-4.5	9 stations	80	†1	do	12	7	4.51	-.73	Van Cleave	7.05	Vaiden	2.28
Missouri	30.3	-3.6	2 stations	76	† 2	Unionville	-11	†27	0.55	-1.63	New Madrid	3.00	3 stations	0.05
Montana	25.9	+3.2	Augusta	67	10	Lonesome Lake	-36	5	.78	+.01	Summit	5.95	Argenta	T
Nebraska	29.1	+2.0	3 stations	72	25	Butte	-17	6	.14	-.54	Thedford	1.03	5 stations	.00
Nevada	39.3	+6.9	Las Vegas	77	10	Lehman Caves N.M.	-2	2	.97	+.03	Glenbrook	5.37	12 stations	.00
New England	28.7	+2.3	Willard Bk.St.Forest,Mass.	67	4	3 stations	-20	†26	4.22	+.89	Machias, Me.	8.98	West Lebanon, N.H.	1.91
New Jersey	32.0	-1.7	2 stations	71	3	Layton 3NW	-18	28	4.00	+.43	Milton	7.79	Deep Water	1.51
New Mexico	40.0	+4.6	Bitter Lakes W.L. Refuge	84	12	Capulin	-18	6	.04	-.71	Chacon	.96	117 stations	.00
New York	25.2	-1.5	Middleburg	68	4	Old Forge	-28	27	3.42	+.46	Peekamoose	8.55	Bolivar	.90
North Carolina	37.9	-4.7	Wilson	76	3	Mortimer Exp. Station	3	19	3.46	-.32	Owens GAP	8.82	Enfield 3S	1.76
North Dakota	10.0	-4.0	Amidon	54	23	Belcourt Indian Res.	-39	26	.57	+.09	Amenia	1.44	Hettinger	.01
Ohio	25.4	-6.2	Cincinnati Aultman Pk.	68	2	Mansfield 6W	-29	27	2.34	-1.35	Centerburg	3.92	Huntsville	1.24
Oklahoma	39.1	-1.5	Chattanooga	85	2	Taloga	-7	7	.10	-1.63	Poteau	.73	37 stations	.00
Oregon	40.1	+5.8	Mitchell	71	22	2 stations	5	2	4.95	+.69	Valsetz	27.17	Baker CAA	.46
Pennsylvania	26.9	-4.3	Derry	72	3	Clarion 3SW	-23	28	3.59	+.51	Tower City	8.81	Jamestown 2NW	1.21
South Carolina	41.1	-5.6	2 stations	77	2	Union 7SW	9	19	3.98	+.45	Caesars Head	7.38	Pelion	1.50
South Dakota	21.1	-.9	Menno	68	23	Columbia 8N	-29	26	.18	-.33	Wilmot	1.18	Pukwana	.00
Tennessee	35.1	-5.7	Samburg Wild Life Refuge	75	3	2 stations	4	19	2.93	-1.58	Camp Creek Bald	5.41	Murfreesboro	1.24
Texas	68.7	-.2	McAllen	95	1	Muleshoe 1	-4	†6	.29	-2.03	Orange	4.91	268 stations	.00
Utah	34.0	+6.9	Kamab P.H.	74	10	Clear Creek	-5	6	1.04	-.06	Alta	9.94	4 stations	.00
Virginia	33.9	-4.1	Buggs Island Dam	75	4	Big Meadows	-2	27	3.59	+.53	Montebello Fish Nurs.	8.73	Hopewell	1.13
Washington	38.0	+4.4	3 stations	67	†23	Chewelah 2S	-14	5	5.53	+.55	Naselle	28.05	Malott	1.08
West Virginia	29.7	-4.9	Hamlin	71	4	Canaan Valley	-15	20	2.54	-.72	Pickens #2	5.57	Hogsett Gallipolis Dam	.89
Wisconsin	13.5	-6.6	Holcombe	48	23	Lone Rock CAA AP	-36	27	1.97	+.72	Sheboygan	3.18	Burnett	1.08
Wyoming	28.1	+6.0	Torrington Exp.Farm	65	25	2 stations	-32	†† 5	.43	-.35	Snake River	3.05	7 stations	.00
Puerto Rico	74.0	-.4	Utuado	94	†26	Guineo Reservoir	29	10	3.40	-1.04	Guineo Reservoir	8.02	Vieques Island	.40
Alaska	4.3	+2.4	Adak	55	7	Allakaket	-55	21	1.76	-.12	Little Port Walter	23.70	Lake Minchumina	0.15

†Other dates also.

CLIMATOLOGICAL DATA

Table 2 — DECEMBER 1950

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
ALABAMA																																
Anniston	599	1013.9	1019.4	50	29	39.2	-----	73	1	13	19	0	23	33	--	2.35	-----	.64	9	0	T	T	6.7	E	--	---	--	---	---	---	---	---
Birmingham	610	993.2	1019.2	50	30	39.9	-4.2	74	1	16	19	0	21	32	76	3.92	-1.22	2.58	9	1	T	T	6.3	NNW	33	NW	3	4	9	18	7.5	31
Mobile CO	10	-----	-----	--	--	-----	-----	--	--	--	--	-	-	--	--	-----	-----	-----	-	-	---	---	---	---	42	NW	3	--	-	--	---	35
Mobile	211	1010.8	1019.1	59	39	48.9	-----	77	1	25	11	0	6	41	78	7.49	-----	2.40	15	4	0.0	0	10.5	N	--	---	--	8	9	14	6.4	--
Montgomery CO	201	-----	-----	--	--	-----	-----	--	--	--	--	-	-	--	--	-----	-----	-----	-	-	---	---	---	---	---	---	---	--	-	--	---	--
Montgomery	198	1011.5	1019.0	54	33	43.2	-6.2	77	1	19	19	0	17	35	76	4.33	-.51	1.77	10	2	T	0	6.4	NW	43	E	6	7	4	20	6.8	51
ARIZONA																																
Flagstaff	6993	788.4		53	18	35.8	-----	68	11	8	25	0	31	16	48	.16	-----	.16	1	0	4.4	4	6.3	NE	--	---	--	10	9	12	5.2	--
Payson CO	4999	849.6	1018.2	64	35	48.7	-----	77	9	26	28	0	13	22	39	.19	-----	.37	1	0	3.0	3	3.4	NE	--	---	--	13	7	11	4.7	--
Phoenix CO	1083	-----	-----	--	--	58.9	+6.9	--	--	--	--	-	-	--	--	-----	-----	-----	-	-	---	---	---	---	19	NW	31	--	-	--	---	85
Phoenix	1108	976.3	1016.0	76	40	57.5	-----	88	10	33	25	0	0	30	40	.03	-.97	.03	1	0	0	0	3.8	E	--	---	--	17	5	9	4.2	--
Prescott	5014	848.6	1019.2	62	28	45.0	-----	73	11	19	31	0	25	15	35	.06	-----	.06	1	0	T	T	6.3	S	30	SW	1	13	8	10	4.6	76
Tucson	2585	926.5	1015.8	73	41	56.9	+6.2	82	10	34	28	0	0	24	31	.27	-.73	D	1	0	T	T	6.7	SSE	33	W	31	18	5	8	4.0	94
Winslow	4880	853.7	1019.8	56	24	39.9	+7.8	68	8	14	28	0	27	15	40	.07	-.61	T	1	0	.7	1	7.2	SE	48	SW	1	15	7	9	4.4	--
Yuma	203	1010.5	1015.8	79	48	63.0	-----	85	10	38	28	0	0	30	34	T	-----	T	0	0	0	0	6.8	NNE	26	NW	31	16	9	6	3.6	86
ARKANSAS																																
Fort Smith	458	1002.4	1019.4	50	26	37.8	-4.0	76	1	6	7	0	25	26	70	.53	-2.23	.38	4	0	.8	1	8.0	NE	30	S	1	--	--	--	5.8	61
Little Rock	257	1006.1	1019.5	49	29	38.8	-5.4	77	2	9	7	0	22	30	74	1.55	-2.59	.66	1	1	1.3	1	6.4	SW	20	SE	2	--	--	--	6.0	60
Texarkana	361	1005.4	1019.1	53	33	43.2	-4.4	79	2	13	7	0	14	32	70	.19	-4.67	.11	4	1	T	T	9.0	NE	---	---	--	7	5	19	7.0	--
CALIFORNIA																																
Bakersfield	489	1001.7	1020.2	61	44	52.6	+4.5	76	19	30	29	0	1	46	83	.32	-.54	.13	7	0	0	0	3.3	NW	--	---	--	4	8	19	7.7	--
Beaumont CO	2589	927.2	1017.8	69	43	55.8	-----	80	11	25	31	0	3	29	41	.01	-----	.01	1	0	0	0	8.6	E	26	E	9	14	7	10	4.5	--
Bishop	4108	876.7	1019.3	62	29	45.1	-----	73	11	23	2	0	27	--	--	.85	-----	.84	3	0	0	0	---	---	--	---	--	8	8	15	6.3	--
Blue Canyon	5280	840.5	1018.5	51	38	44.6	-----	66	23	20	31	0	4	30	63	18.89	-----	6.20	13	0	7.4	4	10.5	SE	--	---	--	5	3	23	8.0	--
Burbank	699	990.5	1016.9	72	47	59.5	-----	88	10	35	28	0	0	41	58	T	-----	T	0	0	0	0	3.7	SE	25	NNW	31	12	10	9	4.7	--
Eureka CO	43	1016.6	1019.0	59	48	53.7	+5.5	67	18	40	31	0	0	--	--	5.99	-.29	1.18	17	0	T	T	6.8	---	29	SW	3	1	2	28	9.1	11
Fresno	331	1008.1	1020.3	57	45	51.0	+5.9	71	8	30	31	0	2	49	92	1.60	+.15	.63	10	0	0	0	5.1	NW	18	NW	1	3	3	25	8.6	38
Los Angeles CO	312	-----	-----	--	--	62.1	+5.5	--	--	--	--	-	-	--	--	.03	-2.60	-----	-	-	-----	--	-----	---	35	N	31	--	-	--	---	75
Los Angeles	99	1013.5	1017.2	69	49	59.1	-----	84	10	40	23	0	0	49	75	.01	-----	.01	1	0	0	0	3.8	W	--	---	--	11	10	10	4.8	--
Mt. Shasta CO	3543	894.0	1020.2	50	32	41.0	+6.2	64	24	19	1	0	20	35	83	5.08	-.68	2.29	16	0	13.0	11	7.6	SE	--	---	--	1	5	25	8.5	--
Oakland	3	1019.6	1020.1	58	47	52.8	+5.0	66	4	38	28	0	0	46	80	5.36	+1.90	1.83	11	0	0	0	4.7	E	--	---	--	3	7	21	8.0	--
Red Bluff	341	1007.1	1020.1	54	43	48.6	+2.5	66	9	35	31	0	0	45	86	4.56	+.16	1.85	15	0	0	0	6.2	NW	26	SE	14	2	4	25	8.6	30
Sacramento CO	25	-----	-----	--	--	-----	-----	--	--	--	--	-	-	--	--	-----	-----	-----	-	-	-----	---	-----	---	---	---	---	---	---	---	---	---
Sacramento	17	1017.6	1020.1	55	46	50.1	+3.9	67	15	34	30	0	0	47	90	4.55	+1.52	1.40	11	0	0	0	7.0	SE	42	S	3	3	3	25	8.6	20
Sandberg CO	4517	864.5	1017.9	58	43	50.3	-----	67	12	24	31	0	3	26	46	.06	-----	.04	3	0	T	T	19.0	ENE	--	---	--	10	10	11	5.4	--
San Diego	19	1013.5	1016.9	69	50	59.8	+4.3	84	10	44	25	0	0	49	74	.05	-1.82	.02	3	0	0	0	4.4	N	18	NW	31	14	7	10	4.4	76
San Francisco CO	52																															32
San Francisco	1	1019.0	1019.5	59	49	53.6	+5.7	67	9	40	28	0	0	47	80	4.77	+.80	1.41	10	0	0	0	8.5	SE	44	NW	30	2	6	23	8.2	--
Santa Catalina	1568	960.4	1016.4	67	54	60.5	-----	81	10	45	31	0	0	--	--	.16	-----	.08	4	0	0	0	-----	---	--	---	--	9	11	11	5.3	--
Santa Maria	231	1009.8	1018.5	67	44	55.6	-----	76	24	32	31	0	1	47	78	1.27	-----	.47	10	0	0	0	6.4	E	--	---	--	10	10	11	5.6	--
COLORADO																																
Alamosa	7534	771.1	1023.9	44	5	24.6	-----	55	11	-7	6	0	31	--	--	.11	-----	.06	3	0	3.6	2	-----	---	--	---	--	14	10	7	4.5	--
Colorado Springs	6175	809.3	1019.3	49	21	34.6	-----	63	25	0	6	0	30	15	48	.06	-----	.05	2	0	.8	1	10.1	NNE	--	---	--	7	14	10	5.8	--
Denver	5221	835.4	1017.5	51	22	36.3	+6.4	65	23	-6	6	0	28	16	48	.32	-.08	.27	3	0	5.9	5	7.8	S	34	NW	25	7	9	15	6.1	65
Grand Junction	4849	862.5	1022.0	46	25	35.4	+7.9	53	12	13	6	0	30	23	63	.30	-.33	.10	7	1	2.6	1	6.3	ESE	35	N	1	9	6	16	6.5	60
Pueblo	4799	856.1	1018.5	51	18	34.6	+4.5	70	25	-8	6	0	31	16	53	.10	-.40	.05	2	0	1.4	1	5.1	WNW	36	NW	1	6	12	13	6.0	58
CONNECTICUT																																
Bridgeport	7	1016.3	1017.0	40	27	33.3	-----	60	4	2	27	0	22	25	71	3.18	-----	.86	12	0	3.2	3	10.3	NE	35	NW	25	10	10	11	5.7	--
Hartford	15	1015.9	1016.6	39	24	31.8	+2.0	64	4	-3	28	0	25	25	75	4.12	+.15	1.20	10	0	7.4	4	8.0	N	30	N	5	7	8	16	6.8	48
New Haven	6	1012.2	1016.3	40	27	33.1	+2.2	57	4	0	28	0	24	--	--	4.60	+.90	1.57	13	0	4.8	4	8.1	---	43	SE	8	7	12	12	6.2	53
DELAWARE																																
Wilmington	73	1013.9	1017.2	41	24	32.4	-----	68	3	6	27	0	27	23	69	1.95	-----	.64	10	0	.7	T	8.5	NW	--	---	--	9	7	15	6.5	--
FLORIDA																																
Apalachicole	13	1017.3	1018.3	60	45	52.3	-3.4	70	1	29	19	0	2	--	--	2.58	-2.54	.92	10	2	0	0	7.8	---	27	NW	3	11	9	11	5.0	67
Daytona Beach	33	1017.3	1018.6	66	43	54.7	-4.3	79	3	30	20	0	3	48	83	2.54	-.20	1.05	8	0	0	0	9.5	NW	30	WNW	31	15	8	8	4.5	--
Fort Myers	15	1018.0	1018.3	73	48	60.3	-4.7	83	3	35	20	0	0	52	81	2.20	+.64	1.06	5	2	0	0	7.3	NE	--	---	--	17	7	7	3.6	--
Jacksonville	18	1018.0	1019.3	63	41	51.8	-2.2	78	3	28	20	0	2	41	73	1.90	-1.12	.61	11	0	0	0	5.6	NW	31	SW	3	14	5	12	5.1	70
Key West CO	5	-----	-----	--	--	-----	-----	--	--	--	--	-	-	--	--	-----	-----	-----	-	-	-----	---	-----	---	---	---	---	27	NW	7	---	---	---	72
Key West	5	1017.6	1017.5	74	63	68.2	-2.1	80	6	55	19	0	0	60	79	2.53	+.86	1.31	7	4	0	0	11.6	NE	--	---	--	18	9	4	3.2	--
Lakeland	214	-----	-----	68	49	58.3	-5.0	79	29	35	19	0	0	--	--	4.53	+2.13	1.83	10	3	0	0	-----	---	--	---	--	14	8	9	4.8	--
Melbourne	22	1017.3	1018.4	69	48	58.3	-4.3	80	27	35	19	0	0	51	81	.93	-1.18	.40	8	1	0	0	8.5	NW	23	NW	10	15	8	8	4.4	--
Miami CO	180	-----	-----	--	--	-----	-----	--	--	--	--	-	-	--	--	-----	-----	-----	-	-	-----	---	-----	---	32	SE	3	17	10	4	---	---	75
Miami	9	1016.3	1017.7	75	56	65.2	-4.0	81	30	40	20	0	0	55	73	1.20	-----	.55	8	2	0	0	7.6	NNW	--	---	--	---	---	---	3.1	---
Miami Beach	---	-----	-----	73	61	67.0	-----	78	29	43	19	0	0	--	--	1.59	-----	.79	7	0	0	0	-----	---	--	---	--	20	5	6	---	---
Orlando	111	1014.2	1018.8	69	46	57.7	-3.6	80	3	33	19	0	0	49	77	4.30	+1.95	1.74	6	0	0	0	7.9	NW	28	WNW	31	12	10	9	4.8	--
Pensacola	13	1016.3	1018.6	59	43	51.1	-2.9	75	1	28	11	0	4	42	--	2.86	-1.79	.98	14	3	0	0	7.9	N	29	SE	6	8	9	14	6.0	54
Tallahassee	64	1016.3	1018.9	62	39	50.7	-1.4	78	1	23	19	0	4	40	75	2.75	-1.75	1.20	12	3	0	0	5.6	NW	--	---	--	13	6	12	5.1	--
Tampa	24	1017.3	1018.5	69	48	58.3	-2.8	79	6	35	19	0	0	49	76	6.66	+4.59	2.03	11	2	0	0	6.8	N	29	SE	7	13	12	6	4.6	77
West Palm Beach	14	1016.6	1017.4	74	54	63.9	-----	86	30	39	20	0	0	55	76	.95	-1.55	.35	8	1	0	0	7.5	NW	--	---	--	20	5	6	3.7	--
GEORGIA																																
Albany	190	1012.2	1019.6	57	36	46.3	-6.4	76	1	23	19	0	9	36	73	3.90	-1.19	1.43	10	1	0	0	4.9	WNW	37	W	3	13	8	10	5.2	--
Atlanta CO	---	-----	-----	--	--	-----	-----	--	--	--	--	-	-	--	--	-----	-----	-----	-	-	-----	---	-----	---	---	---	---	---	---	---	---	---
Atlanta	977	976.0	1018.7	49	33	40.6	-3.6	69	2	18	18	0	16	30	69	2.94	-1.85	1.19	10	0	T	T	9.7	NW	28	NW	4	6	8	17	6.8	36
Athens	798	-----	-----	50	32	40.6	-----	72	2	19	19	0	16	--	--	4.65	-----	2.10	12	0	T	T	-----	---	--	---	--	7	13	11	6.0	--
Augusta	426	1011.9	1018.7	53	31	42.2	-5.9	76	2	20	19	0	18	34	76	4.05	+.69	1.28	10	0	T	T	6.0	W	--	---	--	8	12	11	5.9	--
Columbus	382	1005.1	1019.3	53	32	42.5	-----	73	1	19	19	0	17	34	77	5.47	-----	1.85	11	1	T	T	7.2	NW	--	---	--	9	6	16	6.3	--
Macon	354	1005.1	1018.5	54	34	43.9	-----	73	2	20	19	0	13	34	73	5.23	-----	1.59	11	1	0	0	7.0	NW	29	NW	26	8	9	14	6.3	52
Rome	637	993.9	1019.8	49	27	38.0	-----	70	2	14	19	0	26	28	74	2.64	-----	.99	11	1	T	T	7.4	N	--	---	--	4	8	19	7.1	--
Savannah	38	1017.3	1018.8	57	36	46.0	-4.7	75	2	26	19	0	9	36	74	2.52	-.41	.75	9	1	0	0	9.1	WNW	27	SW	3	14	5	12	5.5	51
Valdosta	200	1010.5	1018.7	61	37	48.6	-5.0	77	1	22	19	0	9	38	--	1.70	-2.53	.79	11	0	0	0	7.6	NW	--	---	--	13	7	11	5.2	--
IDAHO																																
Boise	2842	923.5	1021.6	42	30	36.3	+6.0	50	14	22	2	0	20	34	89	2.19	+.62	.72	13	0	2.9	1	9.5	SE	56	NW	30	0	4	27	9.1	26
Lewiston	1413	966.1	1019.0	47	35	41.0	-----	56	25	26	5	0	5	36	82	1.87	-----	.78	14	0	1.2	T	7.2	E	--	---	--	0	1	30	9.8	--
Pocatello	4444	865.6	1022.6	40	25	32.4	+7.1	48	11	13	31	0	30	28	87	.74	-.41	.40	9	0	1.4	1	6.6	SW	37	SW	30	1	3	27	8.8	33
ILLINOIS																																
Cairo CO	314	1006.1	1019.3	42	26	34.0	-3.8	72	2	12	7	0	23	--	--	2.59	-.81	1.56	7	1	7.5	4	9.1	---	35	SW	2	---	---	---	6.9	50
Chicago	618	992.2	1018.1	28	11	19.6	-7.3	50	2	-10	27	0	30	13	78	2.70	+.63	.72	15	1	27.1	11	9.5	W	38	SW	7	9	6	16	6.3	45
Joliet	580	995.6	1018.2	28	6	16.7	-9.2	50	2	-19	27	0	30	12	84	1.80	+.02	.67	13	1	15.3	6	8.8	S	--	---	--	9	6	16	6.2	--
Moline	569	995.6	1019.7	27	11	19.1	-6.6	44	23	-12	27	0	31	16	75	1.01	-.47	.44	10	2	7.3	4	7.7	W	40	W	7	8	9	14	6.3	41
Peoria	659	995.6	1019.1	29	13	20.8	-7.3	53	2	-6	16	0	31	14	79	.95	-.82	.38	9	1	8.3	5	10.4	NW	33	N	15	8	8	15	6.3	51
Springfield CO	---	-----	-----	--	--	-----	-----	--	--	--	--	-	-	--	--	-----	-----	-----	-	-	-----	---	-----	---	---	---	---	---	---	---	---	---
Springfield	598	994.9	1019.2	31	15	23.1	-6.6	68	2	-6	18	0	30	16	77	.78	-1.40	.41	7	1	7.2	6	13.2	NW	34	NW	15	--	--	--	6.4	54

See footnotes at end of table.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	*Mb.*	*Mb.*	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	*In.*	*In.*	*In.*			*In.*	*In.*	*M. p. h.*		*M. p. h.*			*0—3*	*4—7*	*8—10*	*0—10*	%
INDIANA																																
Evansville	385	1003.4	1020.0	39	20	29.2	-5.6	72	2	7	18	0	30	22	77	1.68	-1.86	.85	10	1	3.5	2	8.3	NNW	32	S	12	--	--	--	6.8	46
Fort Wayne	801	985.4	1018.4	30	13	21.5	-7.1	51	2	-8	27	0	30	16	81	2.50	-.08	.80	15	2	10.4	7	8.2	SW	35	SW	7	2	4	25	8.2	32
Indianapolis CO	----	------	------	--	--	--	--	--	--	--	--	--	--	--	--	---	---	---	--	--	---	---	---	---	---	---	--	---	---	---	---	---
Indianapolis	796	988.2	1018.8	33	14	23.4	-7.5	63	2	-2	18	0	30	18	82	3.00	+.02	1.35	13	1	7.0	3	10.3	W	42	W	2	--	--	--	7.2	36
South Bend	768	987.8	1017.2	30	12	20.8	-6.6	54	2	-4	28	0	30	17	83	2.97	+.73	.79	22	2	23.8	10	11.8	SSW	*32	SSW	7	4	0	27	8.5	--
Terre Haute	585	997.6	1019.5	32	14	23 1	-9.4	65	2	-1	18	0	30	17	78	1.84	-1.09	.88	9	1	6.0	2	7.5	NW	37	SW	2	--	--	--	6.8	47
IOWA																																
Burlington	605	991.9	1018.9	29	12	20.2	-7.1	49	2	-9	18	0	31	14	80	.34	-1.29	.15	5	2	5.6	4	10.3	NW	32	NW	14	7	8	16	6.8	47
Charles City CO	1013	980.4	1019.3	22	4	13.2	-7.2	40	23	-25	27	0	31	---	---	1.54	+.24	.45	12	0	20.5	11	6.1	---	23	S	31	8	7	16	6.4	42
Davenport CO	579	995.6	------	27	13	20.0	-7.1	44	23	-7	27	0	31	---	---	1.14	-.34	.49	10	2	7.1	4	---	---	---	---	---	---	---	---	---	---
Des Moines	800	986.5	1019.2	29	11	20.1	-5.9	56	23	-7	27	0	31	14	76	.27	-.95	.14	4	0	2.9	3	12.3	NW	47	NW	14	---	---	---	7.2	38
Dubuque	641	991.5	1018.3	26	10	18.3	-6.4	44	23	-21	27	0	31	---	---	1.52	+.08	.43	11	2	13.7	7	5.4	---	17	E	1	---	---	---	6.5	43
Sioux City	1097	976.0	1019.1	31	11	20.9	-.7	58	23	-11	6	0	31	14	75	.34	-.56	.19	6	0	2.8	2	9.8	NW	29	NW	5	6	6	19	7.3	43
KANSAS																																
Concordia CO	1375	967.5	1019.0	42	21	31.4	+.7	64	25	-4	6	0	29	---	---	.10	-.53	.08	2	0	1.1	1	7.2	---	30	S	31	---	---	---	5.0	71
Dodge City	2594	927.9	1018.4	49	21	34.9	+2.3	74	25	-5	6	0	29	18	59	.09	-.48	.08	2	0	0.1	T	11.3	NW	48	N	5	7	13	11	5.6	75
Goodland	3645	887.9	1018.5	49	18	33.5	+3.6	74	25	-14	6	0	31	19	66	.11	-.52	.04	3	0	0.7	T	9.5	SW	39	N	4	9	7	15	6.3	--
Topeka CO	----	------	------	--	--	--	----	--	--	--	--	--	--	--	--	---	-----	,07	2	0	0.5	T	8.9	S	56	S	31	---	---	---	5.8	82
Topeka	926	986.1	1019.3	43	17	29.9	----	64	25	-4	6	0	31	18	70	.07	-----	,07	2	0	0.5	T	8.9	S	56	S	31	---	---	---	5.8	82
Wichita	1372	968.2	1018.4	46	23	34.5	-.1	65	25	-1	6	0	27	19	60	.02	-.98	.02	1	0	0.3	T	11.3	S	52	S	31	---	---	---	4.8	83
KENTUCKY																																
Lexington	979	982.1	1019.0	39	21	29.7	-6.1	65	2	6	27	0	29	23	76	1.83	-1.94	1.10	7	0	5.5	3	10.7	SSW	---	---	---	3	11	17	7.1	--
Louisville CO	----	------	------	--	--	--	----	--	--	--	--	--	--	--	--	---	---	---	--	--	---	---	---	---	---	---	---	---	---	---	---	---
Louisville	485	1002.0	1018.9	40	21	30.5	-5.8	70	2	9	27	0	28	23	75	2.66	-1.08	1.31	8	0	4.8	2	8.5	NW	35	S	2	7	7	17	7.0	44
LOUISIANA																																
Baton Rouge	64	1001.0	1018.5	59	41	50.0	-3.5	78	1	20	7	0	5	41	77	6.49	+.90	3.34	12	4	T	0	7.0	E	---	---	---	---	---	---	6.1	---
Lake Charles	12	1016.9	1018.0	63	42	52.3	-1.1	79	2	21	7	0	6	44	83	4.19	-1.44	1.18	11	6	0.0	0	8.5	N	---	---	---	---	---	---	5.6	--
New Orleans CO	12	------	------	--	--	--	----	--	--	--	--	--	--	--	--	---	---	---	--	--	---	---	---	---	20	NW	3	---	---	---	---	46
New Orleans	12	1016.6	1018.6	62	43	52.5	----	78	1	26	7	0	4	44	80	6.12	-----	2.35	11	5	0.0	0	8.9	ENE	---	---	---	---	---	---	5.7	--
Shreveport	174	1009.5	1018.8	57	35	45.9	-3.4	80	1	14	7	0	14	37	76	.80	-3.49	.38	5	1	0.2	T	9.7	NNW	34	SW	1	---	---	---	6.3	49
MAINE																																
Caribou	624	991.5	1015.9	30	14	22.3	+9.1	58	5	-20	27	0	27	17	79	4.98	+2.46	2.10	13	0	12.0	10	12.7	SSE	*40	NNW	5	2	9	20	7.9	--
Eastport	33	1012.5	1015.6	39	26	32.3	+6.0	60	4	-4	27	0	25	---	---	8.40	+4.66	3.15	4	0	8.5	6	11.8	---	43	SE	12	2	9	20	8.0	34
Portland	61	1011.5	1015.4	38	21	29.4	+4.4	57	4	-2	27	0	25	23	78	4.09	+0.12	1.61	10	0	5.6	4	9.1	NNE	39	SE	8	7	5	9	7.1	46
MARYLAND																																
Baltimore CO	14	------	------	--	--	---	----	--	--	--	--	--	--	--	--	---	-----	---	--	--	---	---	---	---	50	S	4	---	---	---	----	44
Baltimore	146	1013.2	1017.9	41	26	33.4	----	70	3	10	28	0	27	24	69	3.74	-----	1.69	8	0	2.5	2	11.0	W	---	---	---	10	7	14	6.1	--
Frederick	294	------	------	41	24	32.1	----	66	4	4	28	0	27	---	---	3.43	-----	1.97	4	0	3.0	3	----	----	---	---	---	---	---	---	----	--
MASSACHUSETTS																																
Boston	12	1012.2	1015.9	42	29	35.5	+3.0	63	3	4	27	0	21	25	66	3.37	-.08	1.22	10	0	1.7	2	12.4	WNW	35	SE	4	9	4	18	6.4	56
Nantucket	43	1014.9	1015.3	43	31	37.1	+1.3	57	4	3	27	0	15	31	78	5.27	+1.53	2.00	17	0	3.7	4	12.0	NW	37	SE	4	4	11	16	7.2	30
Pittsfield	1153	972.2	1015.9	33	18	25.4	+0.5	59	4	-10	28	0	29	---	---	2.89	-.21	1.32	14	0	6.6	3	7.0	---	---	---	---	5	10	16	7.2	--
MICHIGAN																																
Alpena CO	587	991.9	1015.2	29	18	23.5	-1.3	40	7	1	27	0	31	---	---	2.15	+.07	1.42	13	0	9.6	5	11.2	---	41	SE	7	3	7	21	8.1	26
Detroit	619	989.2	1017.2	31	20	25.4	-3.5	51	3	2	26	0	31	19	78	2.47	+.12	1.52	11	1	6.5	6	10.1	NW	41	NW	24	---	---	---	7.5	29
Escanaba CO	594	991.9	1015.2	26	13	19.2	-3.2	38	7	-7	27	0	31	---	---	2.19	+.44	1.09	10	0	15.7	9	10.0	---	34	SE	8	---	---	---	7.3	40
Grand Rapids CO	----	------	------	--	--	--	----	--	--	--	--	--	--	--	--	---	-----	---	--	--	---	---	---	---	---	---	---	---	---	---	---	---
Grand Rapids	638	990.5	1016.7	29	16	23.6	-3.0	46	3	6	27	0	31	18	83	2.95	+.38	1.01	19	1	24.0	8	11.0	W	36	S	8	---	---	---	9.0	14
Lansing	859	983.7	1017.4	29	16	22.6	-4.3	49	2	0	27	0	31	17	81	1.97	-.10	.96	17	1	8.6	4	14.2	SSW	52	S	8	---	---	---	8.2	20
Marquette CO	677	986.8	1014.9	26	16	20.9	-1.7	39	23	2	27	0	31	---	---	2.91	+.25	.80	20	0	39.2	31	8.2	---	27	S	22	---	---	---	9.0	20
Muskegon	627	992.2	1016.2	30	20	25.0	-4.1	45	2	7	26	0	31	20	82	3.92	+2.00	1.33	19	1	26.0	13	9.5	W	---	---	---	0	5	26	9.3	--
Sault Ste.Marie	721	991.2	1014.9	24	12	18.0	-.8	37	7	-15	26	0	31	13	81	2.06	-.17	.44	21	0	30.6	24	9.4	SW	34	NW	24	---	---	---	8.2	28
Ypsilanti	722	987.5	1017.1	30	17	23.5	----	51	2	-5	28	0	31	16	76	2.40	-----	1.26	12	1	6.6	5	10.5	SW	*39	ESE	7	5	5	21	7.6	--
MINNESOTA																																
Duluth	1128	962.4	1017.1	16	-1	7.8	----	39	23	-21	26	0	31	3	77	3.69	-----	2.12	14	0	44.3	31	10.5	NW	47	NW	23	---	---	---	8.1	29
Duluth CO	----	------	------	--	--	--	----	--	--	--	--	--	--	--	--	---	-----	---	--	--	---	---	---	---	---	---	---	---	---	---	---	---
Intern'l Falls	1179	974.9	1019.0	13	-7	2.9	-6.9	36	23	29	26	0	31	0	82	.73	-.10	.30	15	0	9.0	16	----	----	---	---	---	4	5	22	7.9	--
Minneapolis	830	982.4	1018.1	23	5	12.4	-7.2	40	23	-20	27	0	31	7	77	1.99	+1.01	.41	17	0	25.0	16	10.1	WNW	31	NW	24	---	---	---	7.1	42
Rochester	1014	979.0	1018.4	21	1	10.8	-8.7	40	23	-31	27	0	31	6	76	1.81	+.89	.52	13	0	21.4	13	9.2	---	---	---	---	6	5	20	7.3	--
St. Cloud	1034	978.0	1018.4	19	0	9.3	-7.2	42	23	-25	26	0	31	4	79	1.80	+1.20	.39	19	0	21.8	11	8.2	WNW	---	---	---	5	5	21	7.5	--
St. Paul	703	990.2	1018.3	21	4	12.6	-6.4	40	23	-24	27	0	31	6	76	1.75	+.69	.35	19	0	22.8	13	10.3	NW	28	SE	31	6	4	21	7.3	--
MISSISSIPPI																																
Jackson	315	1006.8	1019.0	54	35	44.4	-4.7	77	1	18	7	0	12	36	75	3.82	-1.64	1.40	10	2	T	T	7.5	NW	30	NW	3	5	9	17	7.1	41
Meridian	294	1005.4	1019.5	54	33	43.1	-2.6	77	1	20	19	0	16	36	78	5.95	+.72	1.56	10	1	T	T	5.9	NW	---	---	---	9	5	17	6.5	--
Vicksburg	234	1004.7	------	53	37	44.7	-5.3	79	1	18	7	0	10	22	---	3.21	-2.12	1.14	12	2	T	0	7.8	---	30	S	1	5	8	18	7.1	37
MISSOURI																																
Columbia CO	----	------	------	--	--	---	----	--	--	--	--	--	--	--	--	---	-----	---	--	--	---	---	---	---	---	---	---	---	---	---	----	65
Columbia	733	989.2	1018.9	39	18	28.5	-4.6	66	25	-3	7	0	29	20	78	.23	-1.63	.18	3	0	2.2	2	9.9	S	26	NW	9	---	---	---	6.3	--
Kansas City	741	971.9	1019.0	41	21	30.9	-1.6	65	25	-3	6	0	27	19	65	.22	-.98	.22	2	0	1.0	1	9.0	SSW	42	S	31	---	---	---	6.1	66
St. Joseph	809	982.4	1018.9	39	17	27.8	-1.8	58	23	-4	6	0	30	17	70	.10	-1.19	.10	1	0	1.0	1	10.0	NNW	51	SE	31	12	8	11	5.6	53
St. Louis CO	465	------	------	--	--	--	----	--	--	--	--	--	--	--	--	---	-----	---	--	--	---	---	---	---	36	SW	2	---	---	---	---	51
St. Louis	465	997.6	1018.8	37	21	28.9	-4.5	70	2	0	7	0	28	20	74	.58	-1.15	.38	7	1	7.2	5	8.0	NW	---	---	---	---	---	---	6.9	--
Springfield	1265	969.5	1018.7	43	22	32.5	-3.0	70	1	-4	7	0	26	22	73	.13	-2.18	.11	3	0	3.5	3	11.6	SSE	40	SE	31	9	9	13	6.0	56
MONTANA																																
Billings	3568	890.3	1017.6	40	23	31.4	+5.2	58	23	-14	5	0	24	22	70	.69	-----	.35	5	0	11.3	9	12.1	WSW	54	NW	25	3	9	19	7.3	39
Butte	5553	828.7	1022.2	37	11	24.1	+3.7	53	10	-27	5	0	31	18	75	.59	+.15	.26	7	0	7.8	6	6.4	N	---	---	---	0	6	25	8.5	--
Glasgow CO	2090	941.1	1019.3	26	6	15.8	+.2	48	22	-26	5	0	31	12	81	.34	-.16	.11	7	0	4.7	3	----	----	---	---	---	4	6	21	7.6	--
Great Falls	3663	887.2	1016.8	41	25	33.0	+5.0	58	24	-15	5	0	22	21	62	.58	-.07	.42	8	0	7.8	8	17.2	SW	50	SW	20	4	6	21	7.8	35
Havre CO	2488	926.2	1018.6	33	15	24.1	+3.7	53	24	-20	5	0	28	---	---	.32	-.29	.21	6	0	5.5	5	7.6	---	31	SW	22	6	6	19	7.3	37
Helena	3893	873.7	1021.0	36	17	26.5	+3.8	52	24	-16	5	0	30	20	78	.61	+.14	.29	7	0	9.9	7	4.6	W	38	SW	23	2	3	26	8.5	36
Kalispell	2965	912.6	1018.9	35	23	29.2	----	46	25	-6	5	0	26	26	87	2.11	-----	.53	18	0	13.7	9	5.6	S	---	---	---	1	2	28	9.3	--
Miles City	2629	931.3	1018.3	35	15	24.9	----	48	21	-24	6	0	30	21	---	.35	-----	.10	9	0	4.3	4	7.6	WNW	---	---	---	7	5	19	7.2	--
Missoula	3201	903.5	1021.2	36	22	28.7	+7.3	46	24	7	5	0	30	25	88	1.11	+.16	.43	17	0	12.3	7	3.1	E	24	W	30	0	2	29	9.4	11
NEBRASKA																																
Grand Island	1841	949.5	1018.3	40	15	27.6	----	59	22	-10	6	0	31	16	70	.09	-----	.05	4	0	1.5	1	11.4	NNW	---	---	---	10	8	13	5.8	--
Lincoln CO	1184	------	------	--	--	--	----	--	--	--	--	--	--	--	--	---	-----	---	--	--	---	---	---	---	33	NW	9	---	---	---	---	67
Lincoln	1180	974.6	1019.1	38	15	26.5	+.7	60	22	-8	6	0	31	16	73	.16	-.64	.12	2	0	1.6	1	8.8	NW	---	---	---	---	---	---	6.0	--
Norfolk	1554	961.4	1019.5	34	13	23.1	-1.4	59	22	-13	6	0	31	15	77	.10	-.74	.07	2	0	1.7	1	12.7	NNW	---	---	---	---	---	---	6.1	--
North Platte	2783	915.7	1018.0	44	17	30.5	+3.8	62	25	-5	6	0	31	19	71	.19	-.34	.14	3	0	2.7	2	8.2	W	43	N	4	10	5	16	5.8	5
Omaha	978	977.3	1019.2	34	15	24.4	-2.0	57	22	-9	6	0	31	15	71	.19	-.74	.10	4	0	1.6	1	10.8	NNW	34	NW	5	---	---	---	6.6	34
Scottsbluff	3950	878.8	1018.6	48	18	32.9	+4.5	63	25	-8	6	0	30	19	66	.13	-.39	.13	1	0	1.2	1	7.4	NW	---	---	---	9	8	14	6.1	--
Valentine CO	2581	923.5	1018.6	40	13	26.5	+1.9	61	25	-13	6	0	31	---	---	.05	-.56	.04	2	0	1.2	1	7.7	---	33	N	25	9	8	14	6.2	51

See footnotes at end of table.

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Temperature: Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0— 3	4— 7	8— 10	0—10	%
NEVADA																																
Elko	5075	847.3	1021.7	45	25	35.0	-----	52	9	12	31	0	28	30	88	2.38	----	1.62	9	0	2.8	2	4.5	SW	--	--	--	4	6	21	7.6	--
Ely	6257	811.4	1021.7	48	21	34.8	+10.3	63	24	7	31	0	31	--	--	.42	-.46	.25	6	0	2.1	1	9.2	---	35	SE	3	6	9	16	6.5	56
Las Vegas	2162	940.7	1017.6	65	37	51.2	+7.8	74	10	30	26	0	4	20	32	T	-.42	T	0	0	0	0	4.4	W	--	---	--	13	6	12	5.1	85
Reno	4404	864.2	1020.2	50	27	38.6	+6.7	58	10	19	2	0	26	31	79	1.26	+.28	.58	9	0	.3	T	3.5	SE	45	S	6	2	6	23	8.1	37
Winnemucca	4299	870.3	1021.0	49	27	37.8	+7.8	58	11	16	27	0	24	32	81	1.16	+.08	.44	9	0	.8	1	6.1	---	30	NW	30	2	7	22	8.1	35
NEW HAMPSHIRE																																
Concord	339	1004.7	1015.8	37	19	28.2	+4.2	61	4	-9	28	0	26	21	75	3.42	+.29	1.18	10	0	7.9	5	6.4	NW	29	W	25	4	11	16	7.1	46
Mt. Washington	6262	796.5	1016.3	19	6	12.4	+3.8	40	4	-26	25	0	29	--	--	5.17	-1.90	2.01	20	0	20.0	14	34.7	---	--	---	--	6	4	21	7.9	29
NEW JERSEY																																
Atlantic City	8	1014.9	1016.9	43	30	36.7	+.3	57	4	11	27	0	18	--	--	3.04	-.90	.71	12	0	T	T	16.0	---	60	NE	10	7	12	12	6.5	55
Newark	11	1015.6	1016.8	40	27	33.5	+.1	59	4	5	28	0	23	24	68	4.66	+.89	1.17	14	0	3.4	3	10.6	W	•35	N	4	8	10	13	6.3	--
Trenton	56	1009.8	1016.9	40	27	33.5	-.9	67	3	8	27	0	25	--	--	2.38	-.97	1.18	15	0	.8	1	9.7	---	34	N	4	10	6	15	6.4	48
NEW MEXICO																																
Albuquerque	5310	849.3	1017.1	56	29	42.3	+7.8	64	1	12	6	0	22	17	38	0	-.46	0	0	0	0	0	7.8	N	35	NW	2	16	10	5	3.6	89
Clayton	4969	846.9	1017.3	54	22	38.0	+3.2	72	25	2	6	0	30	22	60	.20	-.28	.14	2	1	2.0	1	12.8	W	--	---	--	7	15	9	5.1	--
Raton	6379	803.6	1017.3	53	16	34.7	-----	68	11	-7	6	0	29	12	44	.07	-----	.07	1	0	.7	T	7.7	NE	--	---	--	10	11	10	5.3	--
Roswell	3611	892.0	1017.0	63	24	43.4	+2.2	77	11	7	6	0	26	17	38	.01	-.65	.01	1	0	T	T	7.7	NNW	47	NW	4	15	9	7	3.8	77
NEW YORK																																
Albany	277	1012.9	1016.5	33	18	25.4	-.1	59	4	-4	27	0	28	20	78	4.15	+1.54	1.95	13	0	17.4	12	7.5	WNW	32	W	24	5	8	18	7.4	29
Bear Mountain	1300	------	-------	33	23	27.6	-----	56	4	1	27	0	28	--	--	6.24	-----	2.01	13	0	20.0	11	----	----	--	---	--	10	6	15	6.1	-
Binghamton CO	858	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	29	W	24	--	-	--	---	34
Binghamton	828	983.4	1017.2	33	13	23.1	-----	59	3	-12	28	0	30	19	80	3.28	-----	1.84	15	0	31.1	13	4.9	WSW	--	---	--	4	5	22	7.8	--
Buffalo	693	987.5	1016.7	33	22	27.1	-1.7	60	3	2	27	0	30	20	76	1.84	-1.52	.55	19	0	22.3	11	13.7	W	58	SW	7	1	9	21	8.4	37
New York CO	10	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	--	---	--	--	--	--	---	52
New York	19	1015.2	1016.8	41	30	35.6	-----	61	4	10	27	0	19	26	68	5.00	-----	1.15	13	0	5.0	4	13.4	NW	51	NW	25	8	9	14	6.5	--
Oswego	292	1003.7	1016.5	33	21	27.2	-.9	61	3	-2	27	0	30	--	--	3.22	-.28	1.26	19	0	24.1	8	9.7	---	38	SE	7	2	8	21	8.3	24
Rochester	543	996.3	1016.5	33	20	26.5	-2.1	62	3	3	27	0	30	21	79	1.97	-.75	.40	19	0	19.1	10	10.3	SW	42	W	24	1	8	22	8.1	35
Syracuse	399	994.2	1017.0	32	18	24.8	-2.6	64	3	-8	27	0	30	19	78	3.59	+.51	1.65	18	0	33.8	13	8.7	WSW	36	W	24	5	7	19	7.6	33
NORTH CAROLINA																																
Asheville CO	2203	------	-------	44	25	34.8	-3.0	64	2	10	19	0	27	--	--	4.11	+.91	2.61	7	0	.2	T	----	---	30	NW	4	6	10	15	6.3	46
Asheville	2093	942.1	1018.6	--	--	----	-----	--	--	--	--	--	--	24	72	----	-----	----	--	--	----	--	7.7	NNW	--	---	--	--	--	--	---	--
Charlotte CO	741	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	29	S	7	--	--	--	---	50
Charlotte	753	989.8	1018.2	49	29	38.7	-2.8	65	26	14	19	0	23	27	68	2.34	-1.52	.93	7	0	T	T	7.3	SW	--	---	--	9	9	13	6.2	--
Greensboro	891	986.1	1018.7	46	25	35.7	-3.5	67	3	9	19	0	29	25	69	1.96	-1.87	1.14	7	0	1.3	1	8.3	SW	40	N	4	10	5	16	6.2	42
Hatteras	4	1017.3	1017.7	51	38	44.2	-5.9	67	4	28	17	0	8	37	77	5.22	+1.01	1.88	12	2	T	T	12.5	NNW	42	SE	4	6	8	17	6.8	50
Raleigh CO	400	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	23	SW	26	--	--	--	---	47
Raleigh	438	1002.0	1018.4	48	27	37.6	-----	71	3	13	19	0	24	26	68	2.66	-----	1.21	10	0	T	T	6.6	NE	--	---	--	10	5	16	6.1	--
Wilmington CO	6	1016.9	-------	51	35	43.0	-6.1	71	2	20	19	0	11	--	--	3.33	+.55	1.04	10	0	T	0	----	---	29	W	24	7	6	18	7.0	39
Wilmington	30	------	1018.4	--	--	----	-----	--	--	--	--	--	--	35	--	----	-----	----	--	--	----	-	5.9	N	--	---	--	--	--	--	---	--
Winston-Salem	967	982.1	1018.4	46	28	36.9	-2.4	63	2	13	19	0	26	20	55	2.81	-.94	1.09	7	1	.7	T	9.2	NNW	--	---	--	10	8	13	6.0	--
NORTH DAKOTA																																
Bismarck	1653	956.0	1020.1	21	3	11.9	-.9	45	22	-29	26	0	31	7	82	.61	+.04	.38	9	0	12.0	8	8.0	E	44	NW	14	4	9	18	7.4	46
Devils Lake CO	1471	963.1	1019.6	15	-2	6.4	-3.1	40	22	-28	26	0	31	--	--	.68	+.14	.38	8	0	10.1	10	7.9	---	27	NW	14	--	--	--	7.4	40
Fargo	895	982.7	1019.5	16	-2	6.7	-4.8	37	23	-28	26	0	31	1	73	.60	-.12	.16	10	0	7.2	7	12.0	NNW	34	NW	14	--	--	--	7.2	42
Williston CO	1877	948.2	1019.4	22	6	14.0	+.2	45	22	-23	6	0	31	9	79	.53	-.05	.24	9	0	5.5	3	5.8	- -	22	SW	24	--	--	--	7.6	37
OHIO																																
Akron-Canton	1210	971.6	1018.1	30	15	22.9	-7.9	55	3	-9	27	0	31	18	79	2.52	+.01	.90	13	0	13.4	14	9.3	SW	--	---	--	5	6	20	7.3	--
Cincinnati CO	553	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	--	---	--	--	--	--	---	41
Cincinnati	871	985.4	1018.6	36	18	27.1	-6.0	65	2	3	27	0	29	21	77	2.35	-----	1.23	12	0	6.4	2	9.6	SW	--	---	--	7	6	18	7.0	--
Cleveland CO	----	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	--	---	--	--	--	--	---	--
Cleveland	787	988.8	1017.6	32	18	25.1	-4.0	55	3	-3	27	0	30	19	79	2.60	+.16	.99	14	1	11.7	18	11.7	SW	38	SW	7	5	5	21	7.6	28
Columbus CO	724	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	--	---	--	--	--	--	---	36
Columbus	815	987.1	1018.4	33	16	24.8	-5.6	54	2	-14	27	0	29	19	78	3.14	+.41	1.63	11	0	10.5	10	8.9	NW	•28	ESE	7	4	8	19	7.5	--
Dayton	1002	980.7	1018.3	32	16	23.7	-7.6	57	2	-4	27	0	29	19	80	2.53	-.22	.95	13	0	13.3	10	10.8	WNW	34	SW	7	5	10	16	7.1	40
Sandusky	603	993.9	-------	32	19	25.8	-5.4	57	2	-3	27	0	29	--	--	2.18	-.10	.94	11	1	10.5	8	8.9	---	32	W	24	2	5	24	8.2	27
Toledo	621	993.9	1017.9	31	15	23.1	-6.0	53	2	-9	27	0	30	18	80	2.25	-.10	1.01	11	1	9.2	5	10.9	SSW	47	SW	7	3	7	21	7.8	29
Youngstown	1178	972.9	1017.7	31	17	23.9	-6.1	54	3	-7	28	0	31	19	79	2.32	-.05	.70	16	0	14.1	15	10.2	SW	•35	ESE	7	6	3	22	7.6	--
OKLAHOMA																																
Oklahoma City CO	1254	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	34	N	5	--	--	--	---	67
Oklahoma City	1254	971.2	1018.9	52	27	39.1	-.2	75	1	5	6	0	23	23	60	.15	-1.35	.13	2	0	1.3	1	12.9	S	--	---	--	--	--	--	4.8	--
Tulsa	672	993.9	1018.8	50	25	37.5	-1.3	77	1	3	6	0	26	23	61	.16	-1.74	.15	2	0	1.5	1	10.6	SSW	38	S	1	--	--	--	4.7	74
OREGON																																
Baker	3369	------	-------	--	--	----	-----	--	--	--	--	--	--	30	--	----	-----	----	--	--	----	--	----	SE	--	----	--	--	--	--	---	--
Baker CO	3446	897.4	1020.7	41	30	35.1	+7.8	50	11	14	2	0	23	--	--	.71	-.99	.25	13	0	3.5	1	5.3	---	17	NW	7	1	1	29	9.0	21
Burns CO	4143	874.7	1020.5	41	27	34.1	+7.8	54	11	10	2	0	28	31	91	2.51	+1.14	.82	12	1	8.0	6	----	----	--	----	--	0	5	26	9.3	--
Eugene	364	1003.7	1017.7	53	42	47.7	-----	64	23	35	1	0	0	46	93	4.56	-----	.63	25	0	0	0	7.1	S	--	----	--	0	1	30	9.7	--
Meacham	4050	877.1	1019.4	40	31	35.4	-----	49	23	21	31	0	18	32	89	5.45	-----	1.48	22	0	15.1	5	6.9	ESE	--	----	--	0	0	31	9.7	--
Medford	1314	970.9	1019.6	49	39	43.8	+5.7	65	9	32	1	0	1	42	92	5.13	+2.25	2.50	20	0	T	T	4.5	N	•35	SE	19	0	0	31	9.8	--
Pendleton	1489	964.1	1019.1	45	34	39.3	+5.0	64	23	24	5	0	13	35	87	2.10	+.48	.59	17	0	2.0	2	7.0	SE	--	----	--	0	3	28	9.5	--
Portland CO	30	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	6.91	+.19	----	----	--	----	--	----	----	--	----	--	--	--	--	---	--
Portland	21	1015.2	1016.8	51	41	46.4	+6.6	64	23	35	26	0	0	42	87	6.31	-----	1.28	23	0	0	0	8.4	SE	29	SE	19	0	1	30	9.5	13
Roseburg CO	479	999.3	1018.3	54	44	49.2	+7.4	62	19	37	27	0	0	--	--	4.81	-.53	.98	22	0	0	0	3.4	---	17	S	15	0	1	30	9.6	12
Salem	195	1009.5	1016.9	53	42	47.4	+6.4	64	23	35	10	0	0	45	90	6.10	-.46	.98	23	0	T	0	7.8	S	--	----	--	0	0	31	9.6	—
Sexton Summit CO	3836	------	-------	46	38	42.0	-----	60	25	26	1	0	6	--	--	6.14	-----	2.13	21	0	6.4	3	----	----	--	----	--	2	1	28	9.1	--
Troutdale	29	------	-------	50	41	45.3	-----	66	23	34	5	0	0	41	87	8.03	-----	1.29	24	0	T	T	13.5	E	•33	E	13	0	2	29	9.5	--
PENNSYLVANIA																																
Allentown	381	1002.7	1017.4	36	21	28.9	-3.8	60	4	-8	28	0	28	23	78	4.07	+.77	1.63	13	0	8.1	2	9.6	WNW	--	----	--	9	5	17	6.4	--
Curwensville	2215	------	-------	30	14	21.8	-----	57	3	-10	27	0	30	17	84	3.86	-----	.79	19	0	31.7	17	11.3	W	•38	ESE	7	3	3	25	8.5	--
Erie CO	655	------	-------	33	23	28.3	-3.6	60	3	8	27	0	29	--	--	3.03	+.20	.49	17	1	24.0	13	9.3	---	43	SE	7	3	4	24	9.3	25
Harrisburg	335	1004.1	1018.0	37	24	30.1	-2.6	60	3	1	28	0	29	21	70	3.75	+.73	2.01	9	0	8.0	5	8.0	WNW	34	SE	7	5	10	16	6.9	42
Park Place	1932	------	-------	30	18	24.0	-----	53	4	-2	27	0	31	--	--	6.18	----	3.59	4	0	13.1	7	----	----	--	----	--	--	6	10	15	6.8	--
Philadelphia CO	26	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	--	----	--	--	--	--	---	50
Philadelphia	13	1016.3	1017.1	41	27	34.2	-.4	68	3	9	28	0	25	24	68	2.12	-1.31	.74	10	0	.2	T	10.1	WNW	•35	WNW	24	7	12	12	6.4	-
Pittsburgh CO	----	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	--	----	--	--	--	--	---	--
Pittsburgh	1248	986.8	1017.9	34	21	27.5	-4.5	61	3	4	27	0	30	20	74	3.26	+.40	.83	15	0	21.0	11	9.8	S	35	W	24	3	10	18	7.6	42
Reading CO	266	1005.1	1017.6	39	26	32.2	-2.0	62	3	3	28	0	26	--	--	4.35	+.79	1.73	11	0	3.7	2	10.6	---	60	E	7	7	10	14	6.7	42
Scranton CO	746	987.5	1018.0	35	22	28.5	-2.2	60	4	0	28	0	30	--	--	3.90	+.88	2.58	11	0	11.0	4	6.0	---	27	NW	24	8	7	16	6.4	41
Williamsport	527	998.0	1017.6	35	19	26.5	-4.3	55	3	-15	28	0	29	19	72	3.55	+.69	1.53	16	0	16.9	6	9.2	W	•56	WNW	24	3	7	21	7.5	--
RHODE ISLAND																																
Block Island	110	------	-------	42	32	37.0	+1.0	59	4	9	27	0	17	--	--	2.99	-.81	.78	9	0	4.3	4	----	---	--	---	--	8	7	16	6.5	--
Providence CO	----	------	-------	--	--	----	-----	--	--	--	--	--	--	--	--	----	-----	----	--	--	----	--	----	----	--	----	--	--	--	--	---	--
Providence	55	1009.8	1016.0	41	26	33.8	+3.5	61	4	2	27	0	25	25	75	4.22	+.84	1.35	11	0	3.1	3	8.5	NW	40	SE	4	11	7	13	5.7	48

See footnotes at end of table.

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	Temperature: No. of days: Max. 90° F. or above	Temperature: No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: .01 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F	°F	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
SOUTH CAROLINA																															
Charleston CO	9	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	31	W	7	--	--	--	---	56
Charleston	41	1016.9	1018.7	56	34	44.7	-4.4	76	2	22	21	0	14	35	74	3.61	+.89	1.93	10	0	0	0	6.3	NE	--	---	--	12	7	12	5.6	--
Columbia CO	332	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	33	SW	7	--	--	--	---	46
Columbia	217	1009.8	1018.6	52	30	41.3	-----	75	2	17	19	0	21	32	74	3.52	-----	1.06	12	0	T	T	5.6	NE	--	---	--	11	6	14	5.8	--
Florence	146	1012.9	1018.6	52	31	41.4	-----	73	2	19	19	0	17	31	73	3.86	-----	1.21	10	0	T	T	6.6	NNE	--	---	--	7	8	16	6.6	--
Greenville	1006	979.3	1017.6	48	30	39.1	-3.1	67	2	17	19	0	22	27	66	4.50	-.34	3.31	9	0	0.4	T	7.5	SW	34	SW	7	8	8	15	6.4	5
Spartanburg	801	987.5	1018.4	48	30	39.1	-3.5	68	2	18	19	0	22	27	67	3.57	-.99	2.37	10	0	0.4	T	7.8	WSW	*48	WSW	7	11	6	14	6.1	--
SOUTH DAKOTA																															
Huron	1282	969.5	1019.2	26	6	16.2	-2.5	53	23	-19	6	0	31	11	80	.35	-.22	.13	11	0	6.9	3	10.9	NW	50	NW	28	4	10	17	7.5	34
Rapid City	3215	903.5	1018.5	41	16	28.5	+3.4	61	23	-10	6	0	30	17	69	.04	-.40	.02	3	0	.9	1	9.4	NW	57	NW	28	7	8	16	6.6	62
Sioux Falls	1420	965.1	1019.1	27	7	17.1	-3.7	52	23	-12	6	0	31	11	79	.24	-.49	.10	8	0	5.1	3	11.0	NNW	30	NW	9	4	7	20	7.5	--
TENNESSEE																															
Bristol	1519	962.8	1018.5	42	24	32.9	-7.7	65	3	7	19	0	26	25	73	3.45	-.51	1.50	16	0	2.5	1	6.8	W	--	---	--	5	6	20	7.6	--
Chattanooga CO	---	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	--	---	--	--	--	--	---	--
Chattanooga	670	990.9	1019.1	47	29	37.6	-3.3	65	2	14	19	0	24	27	69	2.69	-2.44	1.15	8	0	T	0	5.6	S	29	SW	7	5	4	22	7.4	26
Knoxville	949	982.7	1019.1	44	27	35.4	-3.6	68	2	13	19	0	24	27	73	3.07	-1.45	1.32	8	0	2.4	1	7.8	SW	36	SW	7	4	5	22	7.8	27
Memphis CO	---	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	--	---	--	--	--	--	---	--
Memphis	263	1004.4	1019.6	47	28	37.6	-4.8	74	2	11	7	0	24	29	73	3.47	-2.03	1.56	6	2	1.1	1	10.1	NE	37	SW	2	5	14	12	6.5	47
Nashville	577	999.0	1019.3	44	25	34.4	-6.6	70	2	11	19	0	27	27	76	2.17	-2.03	1.31	9	1	1.6	1	7.2	S	27	S	2	2	13	16	7.2	28
TEXAS																															
Abilene	1752	955.3	1017.5	59	30	44.4	-.7	82	1	10	6	0	19	24	53	.02	-1.32	.02	1	0	.2	T	11.5	N	56	N	5	13	6	12	5.1	65
Amarillo	3590	888.6	1016.9	55	25	39.8	+4.3	71	1	3	6	0	26	22	59	.35	-.45	.35	2	0	.5	T	10.9	SSW	54	W	1	--	--	--	4.4	73
Austin	515	995.9	1017.9	66	39	52.7	+1.7	83	11	16	7	0	8	36	61	T	-2.66	T	0	0	0	0	8.4	N	40	N	5	--	--	--	5.2	65
Big Spring	2533	927.9	1018.1	61	29	45.2	+1.4	78	1	9	6	0	22	23	51	T	-.81	T	0	0	T	0	10.4	S	--	---	--	15	5	11	4.5	--
Brownsville	16	1014.2	1016.2	74	52	62.9	+1.7	83	15	29	7	0	2	53	77	.02	-1.85	.02	1	0	0	0	10.9	S	45	NW	6	--	--	--	3.9	72
Corpus Christi	40	1016.6	1017.3	73	47	59.9	+3.4	85	15	24	7	0	2	48	75	.01	-1.44	.01	1	0	0	0	11.2	S	42	N	5	13	10	8	4.6	75
Dallas	487	1000.3	1018.3	58	35	46.5	-1.2	80	1	12	6	0	10	30	59	.13	-2.23	.13	1	0	T	T	8.6	NE	35	S	4	--	--	--	5.7	52
Del Rio CO	957	982.7	1016.9	68	38	53.0	+.8	84	15	25	6	0	6	33	52	T	-.69	T	0	0	0	0	6.5	---	36	NW	5	17	12	2	3.0	81
El Paso	3920	887.2	1015.6	65	35	50.0	+6.3	73	11	19	6	0	13	22	34	0	-.52	0	0	0	0	0	9.7	N	54	W	4	--	--	--	2.9	93
Fort Worth	688	994.2	1018.8	59	34	46.5	0	83	1	10	7	0	12	27	55	T	-1.87	T	0	0	T	T	12.9	NW	*45	NNW	5	--	--	--	5.5	--
Galveston CO	7	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	43	N	5	--	--	--	---	49
Galveston	7	1017.6	1018.0	65	49	56.7	+.3	76	2	23	6	0	2	50	82	1.80	-1.95	1.58	8	5	0	0	11.6	S	--	---	--	10	11	10	5.7	--
Houston CO	41	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	38	NW	5	--	--	--	---	55
Houston	41	1015.9	1018.3	66	44	55.1	+1.3	82	14	19	7	0	3	44	77	1.12	-3.77	.90	4	3	0	0	11.7	NNW	--	---	--	8	10	13	6.0	--
Laredo	500	1001.7	1016.7	73	45	58.9	+2.3	88	2	29	6	0	2	39	56	T	-1.31	T	0	0	0	0	8.5	SSE	--	---	--	--	--	--	3.6	--
Lubbock	3238	903.5	1017.2	58	23	40.3	-.5	75	1	1	6	0	29	21	56	.03	-.76	.03	1	0	.2	T	7.9	WSW	*40	WSW	4	12	10	9	4.7	--
Palestine CO	491	1000.0	1018.3	60	39	49.5	-.4	80	2	12	7	0	7	--	--	.13	-3.54	.08	3	0	0	0	8.0	---	28	SW	1	11	7	13	5.5	57
Port Arthur CO	5	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	38	N	5	--	--	--	---	55
Port Arthur	5	1016.9	1017.7	64	42	53.0	---	80	2	17	7	0	5	45	84	4.06	-----	1.17	12	6	T	0	10.2	NE	--	---	--	9	9	13	6.2	--
San Angelo	1903	949.9	1017.7	62	31	47.2	+.3	82	1	11	6	0	22	26	52	T	-1.22	T	0	0	T	T	6.0	WSW	*30	WSW	2	13	8	10	4.5	--
San Antonio	732	992.6	1017.6	66	38	52.8	-.9	85	15	14	7	0	8	35	59	.03	-1.58	.03	1	0	0	0	8.0	N	37	N	5	--	--	--	4.3	70
Victoria	109	1014.9	1017.4	70	45	57.5	+1.0	83	2	20	7	0	3	44	70	.88	-1.84	.87	2	2	0	0	7.8	SSE	*48	NNW	5	10	10	11	5.4	--
Waco	504	999.0	1017.6	62	36	48.6	-1.3	80	2	15	6	0	11	32	60	.04	-2.77	.04	1	1	0	0	8.6	S	--	---	--	12	4	15	5.8	--
Wichita Falls	1027	981.0	1018.4	56	28	41.8	-3.2	82	1	7	6	0	20	24	54	.02	-1.52	.02	1	0	T	T	9.8	NNE	42	N	5	--	--	--	4.9	--
UTAH																															
Milford	5029	849.3	1023.4	44	19	31.6	+3.8	60	10	7	25	0	29	23	77	.33	-.45	.20	3	0	2.5	2	6.2	N	--	---	--	3	10	18	7.6	--
Salt Lake City CO	4260	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	--	---	--	--	--	--	---	--
Salt Lake City	4222	874.7	1022.4	40	31	35.4	+5.2	56	9	20	31	0	22	31	84	.49	-.91	.22	8	0	3.8	3	4.5	SE	40	S	3	0	3	28	9.6	15
VERMONT																															
Burlington	398	1000.7	1016.2	31	19	24.6	+.2	57	4	-8	27	0	30	20	79	4.10	+2.22	2.60	15	0	10.9	3	9.9	SSW	47	S	7	2	6	23	8.4	15
VIRGINIA																															
Cape Henry	16	1016.6	1017.3	46	33	39.7	-4.0	72	3	21	27	0	15	--	--	2.77	-.67	.95	7	0	0	0	13.5	---	43	NW	16	6	13	12	6.1	57
Lynchburg	947	982.7	1017.8	43	26	34.6	-2.7	65	3	13	19	0	27	23	67	4.37	+1.11	2.62	9	0	8.2	6	9.1	SSW	45	SE	7	8	7	16	6.4	43
Norfolk CO	11	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	32	N	26	--	--	--	---	50
Norfolk	25	1016.9	1018.1	47	31	38.8	-2.5	73	3	19	20	0	19	29	70	2.57	-.77	.86	6	0	T	T	10.4	N	--	---	--	6	12	13	6.3	--
Richmond CO	162	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	--	---	--	--	--	--	---	--
Richmond	160	1011.9	1018.1	45	27	36.1	-1.7	71	3	14	19	0	25	26	70	2.73	-----	1.05	7	0	.7	1	8.2	NNW	34	SE	7	10	7	14	6.0	58
Roanoke	1192	974.6	1018.0	43	26	34.6	-5.3	60	3	15	19	0	27	22	63	3.89	+.79	2.23	6	0	1.1	T	11.8	WNW	--	---	--	6	11	14	6.5	--
Urbanna	31	1017.3	1018.2	46	28	37.0	-----	72	3	14	20	0	23	--	--	2.52	-----	.81	10	0	T	0	----	----	--	---	--	8	11	12	5.9	--
Washington CO	-	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	--	---	--	--	--	--	---	--
Wash. Nat'l. AP	14	1014.2	1018.5	43	29	35.6	-1.0	70	3	15	27	0	23	24	65	2.72	-.60	1.63	8	0	3.8	3	11.1	NW	42	ESE	7	9	6	16	6.7	45
WASHINGTON																															
Ellensburg	1727	921.4	1019.4	37	28	32.3	+3.7	51	25	15	8	0	27	31	94	2.01	+.52	.38	23	0	16.2	10	4.1	NW	--	---	--	0	6	25	9.2	--
Kelso	17	-----	-----	50	42	45.9	-----	63	23	32	13	0	1	--	--	6.80	-----	1.61	27	0	0	0	----	----	--	---	--	0	1	30	9.5	--
North Head CO	194	1006.8	1014.6	52	45	48.4	+4.3	57	10	38	1	0	0	--	--	13.25	+3.77	1.57	29	0	T	T	18.0	---	50	S	21	0	5	26	9.2	9
Olympia	190	1008.5	1015.9	50	40	45.1	-----	59	23	27	31	0	2	44	95	9.16	-----	1.74	26	0	T	T	5.2	S	--	---	--	0	3	28	9.4	--
Port Angeles	8	1013.5	1015.1	48	42	44.7	-----	55	11	35	1	0	0	42	89	2.68	-----	.38	22	0	T	T	7.9	W	--	---	--	0	3	28	9.4	--
Seattle	14	1015.0	1016.0	--	--	----	-----	--	--	---	--	-	--	44	88	---	-----	----	--	--	----	--	7.5	S	--	---	--	--	--	--	---	--
Seattle CO	14	-----	-----	52	44	48.0	+5.4	60	10	35	1	0	0	--	--	6.63	+1.03	.93	26	0	T	0	10.1	---	43	SW	27	0	3	28	9.2	17
Spokane	2357	948.5	1018.9	38	29	33.6	+3.1	50	23	3	5	0	21	31	90	2.16	-.03	.42	21	0	8.0	5	7.3	ENE	33	SW	30	1	2	28	9.2	14
Stampede Pass CO	3960	877.4	1018.2	35	27	31.2	-----	49	10	16	5	0	26	--	--	10.51	-----	2.13	27	0	41.9	45	11.6	---	36	W	24	1	3	27	9.2	--
Stevenson CO	319	-----	-----	46	39	42.0	---	55	30	32	6	0	1	--	--	10.74	-----	2.25	27	0	T	T	----	----	--	---	--	0	0	31	9.8	--
Tacoma CO	127	1008.5	1015.6	51	43	47.1	+6.5	62	23	33	1	0	0	--	--	6.64	-.07	1.49	27	0	T	0	7.2	---	28	SW	19	0	5	26	8.9	10
Tatoosh CO	101	1010.5	1013.6	50	43	46.9	+3.0	56	9	34	1	0	0	43	87	16.81	+3.45	2.72	29	0	.5	T	21.4	E	63	S	21	1	2	28	9.3	7
Walla Walla	1200	-----	-----	--	--	----	-----	--	--	---	--	-	--	36	--	---	-----	----	--	--	----	--	----	SE	--	---	--	--	--	--	---	--
Walla Walla CO	949	982.4	1019.0	46	36	41.0	+5.5	67	23	24	5	0	10	--	--	2.96	+.90	.73	20	0	5.1	4	4.0	---	26	SW	30	0	1	30	9.7	7
Yakima	1038	978.7	1018.8	41	29	34.8	+2.6	56	25	16	2	0	24	32	91	1.34	+.42	.38	13	0	5.3	3	3.6	W	--	---	--	0	6	25	9.0	--
Seattle-TacomaAP	379	1001.4	1015.8	49	40	44.8	-----	58	23	30	1	0	2	42	92	7.14	-----	1.02	25	0	2.0	2	10.3	SSW	--	---	--	0	2	29	9.3	--
WEST VIRGINIA																															
Charleston	950	982.1	1018.7	42	25	33.5	----	70	3	10	27	0	28	25	72	2.17	-----	.89	8	0	1.7	2	8.2	SW	*32	SW	7	2	8	21	8.2	--
Elkins	1969	946.8	1019.0	37	17	26.8	-4.9	63	2	-3	20	0	31	21	79	2.36	-1.10	.73	15	0	16.6	7	5.5	NW	50	SE	7	4	4	23	7.9	28
Huntington	565	--	--	42	26	34.0	+.5	67	2	8	27	0	27	--	--	1.97	-1.63	1.02	9	0	3.0	1	----	----	--	---	--	--	--	--	---	--
Parkersburg AP	837	986.5	1018.3	--	--	----	-----	--	--	---	--	-	--	22	--	---	-----	----	--	--	----	--	8.5	SSW	--	---	--	--	--	--	---	--
Parkersburg CO	615	-	-----	38	23	30.5	-4.7	68	2	4	27	0	29	--	--	2.08	-.95	1.10	8	1	2.5	14	----	----	25	NW	24	5	4	22	7.9	27
Petersburg	1013	980.0	-----	40	20	29.9	-----	63	3	4	28	0	31	--	--	2.60	-----	1.19	7	0	4.7	3	----	----	--	---	--	10	8	13	6.3	--
WISCONSIN																															
Green Bay	689	989.5	1016.7	23	5	13.8	-8.5	35	23	-18	27	0	31	6	70	1.84	+.13	.86	11	0	14.1	10	9.7	SW	40	NW	24	7	4	20	7.0	44
La Crosse CO	----	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	--	---	--	--	--	--	---	--
La Crosse	669	990.9	1017.9	23	4	13.5	-6.9	42	23	-22	27	0	31	8	78	1.47	+.14	.43	13	0	21.3	11	7.7	NW	29	W	8	--	--	--	7.2	--
Madison CO	----	--	--	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	--	---	--	--	--	--	---	--
Madison	857	984.1	1017.6	25	7	15.8	-6.6	38	23	-21	27	0	31	9	75	1.97	+.34	.51	13	1	18.7	12	10.8	W	38	SW	8	--	--	--	6.5	43
Milwaukee CO	----	-----	-----	--	--	----	-----	--	--	---	--	-	--	--	--	---	-----	----	--	--	----	--	----	---	--	---	--	--	--	--	---	--
Milwaukee	674	990.2	1017.1	27	10	18.4	-6.3	41	2	-12	27	0	30	11	75	2.62	+.90	.75	14	1	22.5	12	11.8	WNW	43	SW	8	9	4	18	6.4	41

See footnotes at end of table.

Table 2—Continued

DECEMBER 1950

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days .01 inch or more	Precipitation: No. of days With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile Speed	Wind: Fastest mile Direction	Wind: Fastest mile Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F	°F.	°F.	°F		°F				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0—3	4—7	8—10	0—10	%
WYOMING																															
Casper	5346	835.8	1017.1	42	20	31.2	+2.9	52	23	-13	5	0	27	18	60	.26	-.47	.11	5	0	5.9	2	14.2	SW	--	-	--	8	7	16	6.8	--
Cheyenne	6139	809.3	1017.4	45	22	33.5	+5.0	59	11	-2	5	0	27	17	53	.14	-.41	.05	4	0	1.7	1	14.8	WNW	44	W	3	8	12	11	5.9	59
Lander	5563	834.4	1019.1	45	19	31.8	+11.4	58	11	5	6	0	31	16	56	.14	-.54	.12	3	0	3.4	3	5.8	--	42	SW	1	8	12	11	6.0	53
Rock Springs	6741	794.1	1021.7	37	22	29.2	+6.5	49	11	-4	5	0	30	21	74	.61	+.21	.27	6	0	6.6	4	15.3	W	*42	W	4	4	5	22	7.9	--
Sheridan	4021	883.5	1019.0	42	18	29.9	+7.1	59	23	-14	5	0	30	20	73	.58	-.06	.25	7	0	10.0	5	6.4	NW	56	NW	25	8	7	16	7.0	51
PACIFIC AREA																															
Canton Island	12	1007.1	1007.6	87	78	82.5	--	92	2	76	13	7	0	72	74	.10	-----	.04	4	0	0	0	----	---	-	---	--	10	15	6	4.9	--
Hilo	26	1012.2	1013.4	77	64	70.8	----	82	30	60	10	0	0	64	83	15.90	-----	8.26	26	0	0	0	5.8	N	20	SE	30	0	12	19	8.0	41
Honolulu CO	12	------	------	--	--	71.6	-.8	--	--	---	--	-	--	--	-	5.95	+1.99	----	--	--	----	---	----	---	37	NE	6	--	--	--	---	61
Honolulu	7	1014.6	1015.0	78	66	72.0	- -	83	24	60	20	0	0	61	71	6.53	-----	3.76	12	2	0	0	10.8	NE	--	---	--	10	8	13	5.7	--
Lihue	115	1010.2	1015.2	76	65	70.3	----	80	31	56	22	0	0	61	74	5.56	-----	3.29	16	0	0	0	11.2	NE	--	---	--	3	10	18	7.4	36
Wake Island	11	1011.2	1011.5	83	74	78.3	----	84	27	70	3	0	0	72	81	3.12	-----	.57	19	1	0	0	10.0	E	--	--	--	8	19	4	5.1	--
PUERTO RICO																															
San Juan	9	1012.2	1014.0	82	70	76.1	----	87	11	66	10	0	0	70	83	5.26	----	2.29	19	0	0	0	7.3	SE	23	E	19	5	18	8	5.9	39
ALASKA																															
Anchorage	134	998.6	1003.7	19	5	12.1	-1.2	35	31	-16	6	0	31	9	80	1.71	.86	.49	12	0	27.9	16	---	NE	25	S	31	3	4	24	8.5	13
Annette Island	110	1002.5	1006.4	43	35	39.5	-1.1	50	16	29	2	0	5	35	82	11.21	1.82	2.30	26	0	.7	2	13.7	ESE	*71	E	29	2	3	26	9.1	--
Barrow	22	1018.3	1018.6	-5	-15	-9.9	2.0	15	12	24	26	0	31	18	68	.22	-.01	.11	6	0	2.3	9	11.4	ENE	31	NE	21	19	19	13	‡6.0	--
Bethel	21	1001.7	1003.1	16	7	8.9	1.9	38	24	-26	22	0	31	5	78	.52	-.34	.16	10	0	5.2	5	----	NE	*28	NNE	30	5	4	22	7.8	--
Cordova	40	999.7	1001.4	35	19	27.0	3.1	44	25	3	15	0	30	25	90	4.85	-2.64	.95	21	0	20.4	15	2.7	E	* -	--	--	5	2	24	8.3	--
Fairbanks	436	991.9	1010.2	2	-13	-5.4	2.6	28	1	-31	8	0	31	-10	78	.39	-.19	.09	9	0	7.7	22	- -	N	26	SW	1	5	7	19	7.4	43
Galena	120	1005.4	1010.5	.9	-13	-6.1	-4.3	26	10	-35	6	0	31	15	65	1.12	.23	.34	12	0	13.8	17	6.6	N	*37	E	11	9	3	19	6.7	--
Gambell	25	1003.3	------	24	15	19.6	10.5	33	11	-1	31	0	31	---	--	3.13	2.34	1.00	22	0	31.3	4	24.8	NNE	88	NW	21	0	4	27	9.4	--
Juneau	15	1005.2	1006.1	33	25	29.3	1.2	40	31	-2	4	0	27	27	91	3.43	-.70	.83	22	0	28.5	13	----	E	24	SE	1	1	0	30	9.3	10
Kotzebue	10	1008.8	1009.5	6	6	.2	4.1	29	12	25	8	0	31	-5	79	.57	.25	.18	11	0	5.7	13	19.7	ESE	*66	E	9	13	4	14	5.3	--
McGrath	334	995.3	1008.8	2	13	-5.4	2.4	32	12	-37	8	0	31	9	79	.98	-.32	.33	10	0	22.0	17	---	NW	*26	WNW	1	7	4	20	7.0	--
Nome	13	1005.8	1006.4	17	3	9.6	2.1	30	12	-19	7	0	31	6	79	1.05	-.07	.22	11	0	12.1	15	----	E	47	N	31	10	2	19	6.4	--
Northway	1713	945.0	------	-2	-18	-9.7	6.0	19	1	34	19	0	31	---	--	.44	.06	.11	7	0	9.6	12	2.3	SE	* -	---	--	2	8	21	8.3	--
St. Paul Island	22	999.1	1000.3	35	27	31.5	3.2	42	8	12	28	0	26	27	81	3.13	.88	----	30	0	14.2	4	----	---	* -	---	--	0	5	26	8.9	
Umiat	337	1005.0	------	-12	-27	-19.2	2.1	24	12	-50	21	0	31	---	-	.61	.00	.15	12	0	6.2	16	6.3	W	* -	---	--	--	--	--	‡5.6	--
Wales	9	1008.1	1008.8	17	6	11.2	9.2	37	25	-9	22	0	31	---	-	.41	-.24	.09	13	0	5.9	21	----	---	* -	---	--	5	3	23	8.1	--
Yakutat	28	1002.1	1003.3	35	26	30.3	.4	40	9	12	17	0	26	28	87	6.88	-5.66	.95	21	0	29.0	17	-- -	E	* -	---	--	1	1	29	9.4	--

Data from airport unless otherwise specified. CO indicates data from city office.

* Data entered in column headed "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.

† Number of days Max. 70°F. or above for Alaskan Stations.

‡ Sky cover recorded as midnight to midnight as sun was below horizon for entire month.

HEATING DEGREE DAYS

(Base 65°F.)

Table 3

DECEMBER 195(

State and station	Current season: This month	Current season: Period July through this month	Long term mean July through this month
ALABAMA			
Birmingham	772	1351	1056
Mobile (CO)	473	788	625
Mobile	492	835	
Montgomery (CO)	637	1047	838
Montgomery	670	1137	838
ARIZONA			
Flagstaff	901	2451	2888
Payson (CO)	502	916	
Phoenix (CO)	183	240	568
Phoenix	226	298	
Prescott	613	1162	
Tucson	242	314	
Winslow	769	1393	
Yuma	82	114	428
ARKANSAS			
Ft. Smith	835	1420	1267
Little Rock	805	1364	1182
Texarkana	676	1103	
CALIFORNIA			
Bakersfield	379	553	
Beaumont (CO)	279	535	
Bishop	609	1253	
Blue Canyon	626	1715	
Burbank	165	324	
Eureka (CO)	343	1683	2097
Fresno	428	690	953
Los Angeles (CO)	114	220	384
Los Angeles	184	395	
Mt. Shasta (CO)	739	1988	
Oakland	373	805	
Red Bluff	498	859	1046
Sacramento (CO)	442	729	1030
Sacramento	454	781	
Sandberg (CO)	449	1051	
San Diego	160	284	470
San Francisco (CO)	345	1091	1296
San Francisco	346	908	
San Jose	363	626	
Santa Catalina	168	491	
Santa Maria	285	809	
COLORADO			
Alamosa	1249	3266	
Colorado Springs	932	2219	
Denver	885	2004	2274
Grand Junction	913	1806	
Pueblo	936	1964	2247
CONNECTICUT			
Bridgeport	973	1931	
Hartford	1024	2134	2251
New Haven	980	2000	2118
DELAWARE			
Wilmington	1001	1947	
DIST. OF COLUMBIA			
Washington (CO)	907	1633	1720
Washington	907	1626	
FLORIDA			
Apalachicola	386	629	478
Daytona Beach	316	487	
Fort Myers	157	245	
Jacksonville (CO)	382	627	463
Jacksonville	408	663	
Key West (CO)	13	21	16
Key West	19	29	
Melbourne	216	330	
Miami (CO)	67	128	56
Int. Airport, Hialeah	61	114	
Orlando	232	369	
Pensacola (CO)	429	719	489
Tallahassee	438	748	
Tampa	210	335	215
West Palm Beach	85	152	
GEORGIA			
Albany	573	947	662
Atlanta (CO)	773	1377	1176
Atlanta	749	1319	
Athens	750	1336	
Augusta	699	1192	930
Columbus	692	1194	
Macon	646	1095	950
Rome	832	1509	
Savannah	581	939	642
Valdosta	500	846	
IDAHO			
Boise	884	1968	2289
Lewiston	733	1889	
Pocatello	1004	2425	2664
ILLINOIS			
Cairo (CO)	954	1698	1523
Chicago (CO)	1271	2353	2266
Chicago	1403	2624	
Chicago University	1319	2473	
Joliet	1490	2830	
Moline	1416	2678	
Peoria	1364	2562	2306
Springfield (CO)	1249	2280	2074
Springfield	1291	2465	
INDIANA			
Evansville	1100	2015	1679
Ft. Wayne	1342	2645	2343
Indianapolis (CO)	1210	2248	2060
Indianapolis	1281	2427	
South Bend	1363	2677	
Terre Haute	1290	2411	
IOWA			
Burlington	1379	2631	
Charles City (CO)	1594	3100	2944
Davenport (CO)	1385	2534	2367
Des Moines	1387	2619	2472
Dubuque	1443	2722	2597
Keokuk (CO)			2135
Sioux City	1362	2757	2661
KANSAS			
Concordia (CO)	1032	2004	2090
Dodge City	925	1856	1977
Goodland	969	2165	
Topeka (CO)	1038	1904	1948
Topeka	1080	2030	
Wichita	937	1746	1786
KENTUCKY			
Lexington	1089	2077	1827
Louisville (CO)	1026	1868	1683
Louisville	1061	1954	
LOUISIANA			
Baton Rouge	469	761	606
Lake Charles	396	642	
New Orleans (CO)	358	577	472
New Orleans	414	671	
Int. Airport, Moisant	391	651	
Shreveport	594	958	856
MAINE			
Caribou	1318	3508	
Eastport	1006	2756	3154
Greenville (CO)	1324	3415	3616
Portland	1096	2662	2700
MARYLAND			
Baltimore (CO)	894	1599	1642
Baltimore	973	1838	
Frederick	1011	1939	
MASSACHUSETTS			
Boston	905	1851	2113
Milton	1038	2310	
Nantucket	859	1875	1926
Pittsfield	1222	2855	
MICHIGAN			
Alpena (CO)	1279	3032	3027
Detroit	1218	2482	2394
Escanaba (CO)	1413	3433	3222
Grand Rapids (CO)	1222	2505	2478
Grand Rapids	1276	2741	
Iron Mountain	1516	3632	
Lansing	1305	2793	
Marquette (CO)	1360	3469	3230
Muckegon	1231	2741	
Sault Ste. Marie	1435	3701	3446
Traverse City	1245	3004	
MINNESOTA			
Duluth (CO)	1699	4097	3705
Duluth	1771	4295	
International Falls	1925	4542	
Minneapolis	1627	3252	3036
Rochester	1675	3376	
St. Cloud	1719	3711	3441
St. Paul	1617	3230	
MISSISSIPPI			
Jackson	636	1046	877
Meridian	672	*1142	952
Vicksburg	626	1005	831
MISSOURI			
Columbia (CO)	1068	2037	1952
Columbia	1126	2162	
Kansas City	1056	1931	1883
St. Joseph	1146	2150	
St. Louis (CO)	1087	1986	1737
St. Louis	1114	2068	
Springfield	1001	1936	1752
MONTANA			
Billings	1035	2766	2902
Butte	1265	3988	
Glasgow (CO)	1521	3628	
Great Falls	989	2892	
Havre (CO)	1262	3306	3336
Helena	1187	3361	3192
Kalispell	1103	3181	3339
Missoula	1119	3137	3160
NEBRASKA			
Grand Island	1151	2418	
Lincoln (CO)	1160	2224	2292
Lincoln	1187	2424	
Norfolk	1293	2656	
North Platte	1065	2432	2516
Omaha	1252	2427	2326
Valentine (CO)	1185	2720	2796
NEVADA			
Elko	921	2456	
Ely	929	2535	
Las Vegas	419	672	1049
Reno	810	1968	2229
Tonopah			2228
Winnemucca	837	2133	2606
NEW HAMPSHIRE			
Concord	1129	2601	2804
Mt. Washington Obs.	1627	5668	
NEW JERSEY			
Atlantic City	870	1587	1702
Newark	973	1838	1982
Trenton	971	1858	1932
NEW MEXICO			
Albuquerque	697	1239	1844
Clayton	829	1711	
Roswell	663	1180	1510
Raton	931	2102	
NEW YORK			
Albany	1218	2544	2443
Bear Mountain (CO)	1156	2439	
Binghamton (CO)	1219	2512	2552
Binghamton	1291	2726	
Buffalo	1168	2457	2433
New York (CO)	924	1704	1861
La Guardia Field	905	1679	
Oswego	1166	2456	
Rochester	1191	2492	2465
Schenectady (CO)	1160	2444	
Syracuse	1241	2538	2535
NORTH CAROLINA			
Asheville (CO)	931	1785	1698
Asheville	964	1935	
Charlotte (CO)	780	1357	1270
Charlotte	809	1439	
Greensboro	903	1687	
Hatteras (CO)	639	946	835
Raleigh (CO)	789	1371	1267
Raleigh	841	1498	
Wilmington (CO)	674	1089	921
Winston-Salem	863	1611	
NORTH DAKOTA			
Bismarck	1640	3743	3481
Devils Lake (CO)	1815	4207	3962
Fargo	1805	3889	
Grand Forks	1828	4052	3870
Williston (CO)	1578	3797	3660
OHIO			
Akron	1299	2681	
Cincinnati (CO)	1053	1945	1901
Cincinnati	1166	2246	
Cleveland (CO)	1160	2263	2197
Cleveland	1231	2402	
Columbus (CO)	1176	2238	2079
Columbus	1239	2413	
Dayton	1271	2460	2040
Sandusky (CO)	1206	2302	2202
Toledo	1293	2577	2303
Youngstown	1268	2648	
OKLAHOMA			
Oklahoma City (CO)	774	1351	1422
Oklahoma City	787	1373	
Tulsa	849	1461	
OREGON			
Baker (CO)	918	2464	2928
Baker	918	2642	
Burns (CO)	951	2479	
Euguene	530	1574	
Meacham	808	2784	
Medford	650	1603	1930
Pendleton	791	1969	
Portland (CO)	516	1492	1716
Portland	571	1659	
Roseburg (CO)	480	1302	1736
Salem	537	1639	
Sexton Summit (CO)	706	2226	
Troutdale	604	1718	
PENNSYLVANIA			
Allentown	1112	2221	
Curwensville	1336	3070	
Erie (CO)	1131	2250	2234
Harrisburg	1074	2115	2015
Park Place	1265	2690	
Philadelphia (CO)	910	1670	1701
Philadelphia	945	1762	
Pittsburgh (CO)	1084	2100	1995
Pittsburgh	1155	2305	2149
Reading (CO)	1008	1918	1939
Scranton (CO)	1124	2275	2336
Williamsport	1185	2406	2274
RHODE ISLAND			
Block Island	862	1729	1928
Providence (CO)	915	1865	2169
Providence	960	2013	
SOUTH CAROLINA			
Charleston (CO)	585	920	701
Charleston	619	1021	
Columbia (CO)	682	1144	988
Columbia	725	1237	
Florence	722	1212	
Greenville	794	1399	1201
Spartanburg	798	1414	
SOUTH DAKOTA			
Huron	1508	3222	3062
Pierre			2793
Rapid City	1116	2753	2750
Sioux Falls	1479	3107	
TENNESSEE			
Bristol	987	1922	
Chattanooga (CO)	794	1369	
Chattanooga	839	1511	1286
Knoxville	912	1659	1463
Memphis	844	1458	1197
Nashville	945	1709	1407
TEXAS			
Abilene	635	996	1041
Amarillo	763	1419	1668
Austin	384	603	670
Big Spring	608	945	
Brownsville	131	221	249
Corpus Christi	198	309	368
Dallas	571	923	943
Del Rio (CO)	362	556	653
El Paso	456	779	1075
Ft. Worth	576	917	922
Galveston (CO)	254	389	427
Galveston	269	411	
Houston (CO)	279	450	
Houston	321	514	519
Laredo	207	313	
Lubbock	762	1309	
Palestine (CO)	482	773	NZH
Port Arthur (CO)	333	523	533
Port Arthur	379	623	
San Angelo	549	853	
San Antonio	377	601	569
Victoria	256	405	
Wichita Falls	713	1161	
Waco	504	801	
UTAH			
Milford	1026	2130	
Salt Lake City (CO)	894	1832	2191
Salt Lake City	912	1972	2378
VERMONT			
Burlington	1242	2763	2996
VIRGINIA			
Cape Henry	776	1271	1206
Lynchburg	936	1778	1590
Norfolk (CO)	753	1238	1198
Norfolk	802	1371	
Richmond (CO)	849	1541	1490
Richmond	880	1616	
Roanoke	938	1824	
Urbanna	858	1520	
WASHINGTON			
Ellensburg	1010	2673	
Kelso	583	1924	
North Head (CO)	507	2148	2218
Olympia	611	2102	
Port Angeles	621	2523	
Seattle (CO)	520	1620	1929
Seattle	620	2068	
Spokane	966	2565	2599
Stevenson (CO)	704	1879	
Tacoma (CO)	549	1813	
Tatoosh Island (CO)	556	2525	2530
Walla Walla (CO)	740	1796	1992
Yakima	931	2370	2372
WEST VIRGINIA			
Elkins	1176	2528	2281
Huntington	955	1766	
Parkersburg (CO)	1062	2050	1893
Petersburg	1079	2166	
Charleston	970	1871	
WISCONSIN			
Green Bay	1580	3461	2946
La Crosse (CO)	1531	2920	2843
La Crosse	1591	3205	
Madison (CO)	1473	2936	2778
Madison	1516	3056	
Milwaukee (CO)	1372	2747	2554
Milwaukee	1437	2917	
WYOMING			
Casper	1043	2737	
Cheyenne	965	2687	2944
Lander	1023	2877	3379
Rock Springs (CO)	1028	2692	
Rock Springs	1102	2933	
Sheridan	1078	2852	
ALASKA			
Anchorage	1636	5143	
Annette Island	789	3184	
Barrow	2326	7710	
Bethel	1735	5212	
Cordova	1172	4556	
Fairbanks	2186	6387	
Galena	2204	6020	
Gambell	1401	5323	
Juneau	1098	4212	
Kotzebue	2009	5783	
McGrath	2183	6090	
Nome	1720	5139	
Northway	2322	7049	
St. Paul	1044	4493	
Yakutat	1069	4195	
Umiat	2616	7422	
Wales	1661	5464	
*LATE REPORTS RECEIVED			
Ypsilanti, Mich.	1273	2581	
Stampede Pass (CO), Washington	1042	3733	

Data from airport unless otherwise specified. CO indicates data from city office.

Table 4

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Weyerhauser (near), Wis.	1	Night			2		$10,000		Snow	A small Beechcraft airplane crashed and burned about 8:30 p.m. in northwestern Rusk County. The accident was attributed to the snowstorm.
Wisconsin	1-2				6				Freezing rain and snow	Six persons killed in highway traffic accidents. Roads very slippery, and snow falling at time of crashes.
Madison and Macoupin Counties, Ill.	2	3 p.m.	50	25	1	3	12,000	$100	Tornado and electrical	Originated near Fosterburg, then traveled aloft until reaching Mt. Olive. One motorist killed and three injured near Mt. Olive when their car was carried 600 feet. Lightning accompanying the tornado destroyed a barn, but other property damage minor. Storm moved east-northeastward.
West Plains, Mo.	2	3:15-3:30 p.m.					500		Wind	Lumber shed roof thrown across city's primary electric cables, disrupting electric service for about 4 hours. Two large trees uprooted in different areas.
Madison County, Ill.	2	3:30 p.m.	†5	40			150,000		Hail and wind	Storm originated in St. Louis County, Missouri, and moved into Illinois. Heaviest damage occurred in the Granite City-Madison-Venice-Nameoki-Mitchell area, where thousands of windows were broken, many roofs pierced, and autos dented. Lesser damage reported at Collinsville, Maryville, Troy, and Marine. High winds accompanied hailstorm.
St. Louis County, Mo.	2	3:30-4:30 p.m.	†4	20-25			4,000,000		Hail	Storm, moving northeastward with moderate winds, passed over Kirkwood, Glendale, Webster Groves, Maplewood, Richmond Heights, northern St. Louis, and the Granite City area in Illinois. Hail fell in two major waves. Largest stones were 1 to 1 1/2 inches in diameter. Most damage to roofs, windows, greenhouses, and manufacturer's stocks. Greenhousemen and nurserymen alone lost $150,000 in glass and nearly $200,000 in plants which later froze. Bulk of damage in city of St. Louis to roofs and merchandise of manufacturers in northern part of city. Additional damage inflicted by this storm in Granite City-Madison-Venice-Nameoki-Mitchell area in Illinois, mainly to roofs and greenhouses. Electric and telephone services disrupted in Granite City, Madison, and Venice.
Madison and Bond Counties, Ill.	2	4 p.m.	200	22	2	25	550,000		Tornado	Began near Highland, then moved east-northeastward, striking Pocahontas and Greenville. Heaviest damage occurred at Greenville where 2 persons were killed. About 100 homes damaged in Greenville, many of them being demolished. Communication and power lines also hit hard.
La Cross, Izard County, Ark.	2	4:25 p.m.	Narrow	8	0	0	Slight	Slight	do	Severe storm first struck near La Cross, moving northeastward. Since there were no communities in path, damage was slight. Two houses and a barn destroyed near Myron, and several other barns either damaged or destroyed. Several chicken houses destroyed and some livestock injured.
Effingham, Ill.	2	5:17 p.m.					See remarks		Winds	High winds blew down 240-foot tower of broadcasting station.
Randolph County (northeastern portion), Ill.	2	5:30 p.m.	50	11	0	0	75,000		Tornado and hail	Tornado originated 4 miles northwest of Sparta, and moved east-northeastward through rural areas, heavily damaging several farms, and the buildings and equipment of an abandoned coal mine. Heavy hail struck Tilden, 2 miles north of funnel's path, breaking many windows and damaging roofs. Tornado damage, $45,000; hail damage, $30,000.
Semmes, Mobile County, Ala.	3	5:30 a.m.					3,000		Wind	Wind pushed two houses from foundations, and destroyed a barn.
Honolulu, and vicinity of Koko Head, Island of Oahu, Hawaii	3	P.m.			1				Rain	Heavy rain. Boy slipped, fell into raging and swollen Manoa stream and was drowned. Water streaming off mountainside in vicinity of Koko Head flooded low places. Several buildings damaged. Some pigs and chickens swept into sea.
Iao Valley and Wailuku, Island of Maui, Hawaii	3	Late p.m.			1				do	Flash flood. Boy drowned when car was swept into overflowing Iao stream. Mud and silt carried into homes and stores by rushing waters. Small bridges washed out; roads damaged.
Adams and York to Lycoming, Lackawanna and Monroe Counties, Pa.	3-4					4			Winds, rain, and flooding	Flash flooding in parts of areas mentioned blocked highways in forenoon, forced evacuation of 4 families from Landingville, and closed schools at Blain, Schuylkill Haven, Cressona, and Tower City on 4th. Harrisburg had high winds which ripped loose shingles and roofing, felled or broke trees, and disrupted some power and telephone lines. Railroad washouts reported

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
										at 6 places in York County, and 1 in Schuylkill County. Landslides and falling rocks, loosened and undermined by heavy rains, common along steep slopes in eastern mountains. Three bridges washed out near Pine Grove. About 6,000 miners were idled by flooded mines near Lehighton.
Douglas and Bayfield Counties, Wis.	5-6	Night			1				Snow and winds	Snowfall exceeded 24 inches in places and drifted badly. Schools closed because of condition of roads. One death due to traffic accident.
Most of Columbia Basin east of Cascades in Oregon	5-7		Several miles				$40,000		Ice (glaze)	A freezing rain that began evening of 5th and continued intermittently through 6th and into 7th produced severe icing conditions. Heavy ice formed on roads, power and telephone lines, trees, shrubs, and buildings. Many trees and shrubs badly broken down. Power and telephone lines collapsed, and a number of poles broken off at ground. Highways exceedingly dangerous and numerous wrecks of varying degrees of severity. A large share of estimated $40,000 damage was to power and telephone installations.
Duluth and vicinity, Minn.	5-8								Snow and wind	Traffic seriously delayed; many schools closed; business largely suspended; mail and food deliveries curtailed; a number of personal accidents and automobile collisions occurred; city streets, highways, and rural roads blocked. Northeast gales accompanied storm. In the 4-day storm 35.2 inches of snow occurred at Duluth Airport, of which 23.2 inches fell on the 6th. Duration of this snowstorm established a new record at Duluth, where many of the hill streets still blocked by drifts as late as 8th.
Montgomery County, Ala.	6	A.m.					1,000		Winds	High winds for several hours damaged roofs, trees, shrubbery, etc. High winds also reported in Chilton County, but no damage reported.
Bluefield and vicinity, W. Va.	6-7						See remarks		Wind and rain	Winds estimated in excess of 50 m.p.h. blew off roofs and blew signs down. Electric and telephone service disrupted. Some Bluefield streets, dwelling house and store basements flooded.
Hickory, Catawba County, N.C.	7	Early morning					See remarks		Wind	Wind reached 45 m.p.h. at times. Power and communication lines broken in northern part of county. Radio stations in Hickory and Newton forced off air for an hour. In Hickory alone, 617 telephones out of order.
Tazewell County, Va.	7	A.m.					See remarks		do	Telephone and electric power lines felled.
Milwaukee County, Wis.	7	Afternoon							Snow	Highway traffic badly disrupted because of snowstorm.
Bluefield, Va.	7	P.m.					See remarks		Wind	New building unroofed.
Buena Vista, Va.	7	P.m.					See remarks		do	Segments of roofs of two warehouses ripped off.
Fayette County, Pa.	7						See remarks		do	All American Airways at Connellsville Airport reported wind 60 m.p.h., with gusts reaching 75 m.p.h. At least a dozen roofs severely damaged, with walls loosened on 4 buildings. Boy blown into creek, but rescued uninjured. Hundreds of windows damaged by winds which blew down trees and caused considerable power and telephone wire damage. Two drive-in theat screens damaged. At least 8 cars and trucks damaged by falling buildings.
East Pittsburgh, Pa.	7						70,000		do	A commercial blimp ripped from its moorings, with resultant damage indicated.
Chautauqua Lake, N.Y.	7	All day					25,000		do	Winds up to 50 m.p.h. lashed Chautauqua Lake, inflicting heavy damage to shore property. Logs, ice floes, and flotsam hurled on property up to 100 feet from shore. Boathouses washed from foundations and artificially filled lawns washed into lake.
Michigan	7				2		5,000		Snow and ice (glaze)	A sudden drop in temperature and high winds resulted in slippery and snow-drifted roads. Ice on roads accounted for deaths and property damage.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Rockbridge, Augusta, Alleghaney, Bath, Craig, Botetourt, Roanoke, Patrick, and Henry Counties, Va.	7-8						See remarks		Rains and flooding	Much minor damage, mostly to secondary roads, principally in Rockbridge County. Several small bridges on these roads washed out. In Clifton Forge flooding of numerous basements, a lumber yard, and armory, resulted in moderate nuisance damage; and this city's water supply was cut off for nearly 48 hours, when 80-foot sections of two big water mains leading from city's reservoir ripped away by a swollen creek. Landslides occurred near Dixie Caverns and Hot Springs.
Virginia, northern and central portions	10-11								Snow	Snows ranging up to 15 inches closed schools in 13 northern counties. Route 1 jammed for about 12 hours between Triangle and Woodbridge and at Ladysmith; at time vehicles were lined up in 6-mile strings. Jamming due principally to trailer trucks jack-knifing when slushy snow turned to ice.
Northumberland County, Pa.	11	1:42 a.m.				16			do	Snow accumulation on previously water-soaked hillsides developed into landslide of 5 to 8 feet of shale and snow across Pennsylvania Railroad tracks near Fitler, which was struck by northbound passenger train.
Chambersburg area, Pa.	11	Morning							do	Five-inch snowfall in area with higher amounts in outlying sections kept nearly 1000 workers from reporting for work at Letterkenny Ordnance Depot because of road conditions.
Washington County, Maine	11						$20,000		Rains	The northeastward movement of a wave disturbance along coast on 8th and 9th was closely followed by another on 11th and 12th, both of which caused heavy precipitation in Maine, particularly in Washington County, where Woodland reported 4.30 inches on 11th. Record or near-record floods in many streams, but damage of serious nature mostly confined to lower basin of St. Croix. Washouts on main-line railroads halted traffic; several small bridges carried away; highways damaged.
Harrisburg area, Pa.	15	Morning			2	5	See remarks		Snow and ice	Several auto crashes, due to ice and snow-covered highways.
Jefferson County, Ky.	19								Snow	Numerous accidents resulted from slick roads caused by the snow. Traffic slowed to a crawl in entire county. County schools closed because of bad roads. Over 2 inches of snow fell in Louisville area.
Baltimore, Md.	22	P.m.				2			do	A light snow fell and melted, but froze with fall of temperature. Hardest hit areas of city were western, northern, and northeastern. Police reported " a jam at almost every corner with every radio car on duty rushing to one accident after another". Cars stalled along roads and left overnight.
Pennsylvania, central portion	22-23				2	11	See remarks		Snow and ice	Several auto and truck accidents throughout area. Some damage to buildings.
Wisconsin, southern portion	25	Night							Snow	Highway traffic disrupted by snowstorm.
Idaho, south-central and southeastern portions	25-27						See remarks		Ice(glaze)	Much of southern Idaho blanketed by fog during period of 24th to 28th. In some areas freezing drizzle accompanied the fog, and ice accretion on telephone and power lines caused considerable disruption of service. Principal trouble came on 25th and 26th, and heaviest ice accretions were in area extending southward from Pocatello to Utah line. Less serious trouble occurred in vicinity of Grace and Bancroft, in Shoshone-Richfield area, and at Council. Ice accretions reached a diameter of 1 to 1 1/2 inches in most areas, but on power lines around Malad and in Arbon Valley ice reported to have reached a diameter of about 5 inches. Cost of restoring telephone service estimated at $5,000, but no estimate available for repairs to power lines which apprently suffered much greater breakage.
Kosciusko (near), Attala County, Miss	27				1				Cold wave	Man froze to death in car stalled on muddy road near Kosciusko.
North Carolina (most interior counties)	28-29						See remarks		Sleet and ice (glaze)	Highways covered with ice on 28th and morning of 29th. Trees and power lines coated with ice, but little damage reported.

See footnotes at end of table.

Table 4—Continued

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
South Carolina, northern portion	28-29	All day 28 to noon 29				See remarks	See remarks		Ice (glaze)	Moderate glaze resulted in considerable damage to wires and trees from limb breakage, especially in Columbia where accumulation of ice 1/4 inch thick on objects on morning of 29th. Telephone and power operations interrupted for many hours on 29th in several sections of Columbia. A few minor accident from slippery roads.
Baltimore, Md.	28-29	P.m. of 28th - a.m. of 29th				5			do	Hundreds of motorists forced to abandon their automobiles throughout city. Bus traffic stopped betwe Washington and Baltimore for several hours. Scores of minor accidents. Four persons injured as a resu of car smash-ups. One policeman suffered a lacerat temple when he slipped and fell on ice while going to aid a pedestrian.
Massachusetts, Rhode Island, Connecticut, southern Maine, New Hampshire, and Vermont	28-29				3	Many			do	Freezing rain on all exposed surfaces. On highways it formed faster than crews could cover it; blockad of almost unprecedented extent on such heavily traveled roads as Route 1 and Worcester Turnpike (Mass.) Innumerable skidding accidents injured many persons.
Virginia	28-29								do	Highway traffic at standstill or slowed up considera for about 18 hours. Accidents were numerous; in Richmond alone more than 50 collisions occurred.
Pennsylvania, central and southern portion	29				1	54			do	Glazed highways made travel very hazardous. Traffic jams and minor skidding accidents general in cities. Very little traffic moving on rural roads, and Turnpike traffic practically nil. One death from skiddi on glazed highway near Lancaster. Philadelphia area reported hundreds of skidding accidents, and scores persons injured in falls on ice (at least 50 people treated at hospitals).

PRELIMINARY TOTALS BY STORM TYPES FOR DECEMBER 1950

Type	Deaths	Injuries	Damage
Tornado	3	28	$ 597,100
Wind			149,500
Hail			4,130,000
Electrical			10,000
Rain and flash floods	2	4	20,000
Snow	7	34	10,000
Ice or glaze	12	59	50,000
Cold wave	1		
Total	25	125	$4,966,600

† Miles instead of yards.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS
DECEMBER 1950

For the second consecutive month severe floods occurred in the Central Valleys of California. During this flood the American River reached a crest of 42.7 feet at Sacramento as compared to the record crests of 44.03 and 45.75 feet in November. The Merced River reached a record stage of 23 feet at Exchequer, Calif., 15.5 feet above flood stage while the San Joaquin reached a record stage of 27.9 feet at Vernalis, Calif. Greater damage occurred along the American, Stanislaus and Tuolumne Rivers during the current flood than in November. The floods in western Nevada were not as severe as in November except in the West Walker River Basin and in some smaller streams.

In the Ohio Basin the earliest winter floods of record were experienced. It was also the first time that flood stage had been exceeded on three different occasions in one calendar year along the middle reach of the Ohio between Cincinnati, Ohio, and Louisville, Ky. No unusually high stages occurred on any of the tributaries.

ST. LAWRENCE DRAINAGE.--Minor flooding occurred in streams in the Lake Erie drainage during the first decade of the month due to snow melt and rain. The snow on the ground ranged from 6 to 15 inches over the drainage area and fell during the latter part of November. Lowlands along the streams were flooded but no actual damage was reported. In Fort Wayne, Ind., city parks were flooded and in a few places the water reached close to residential properties.

ATLANTIC SLOPE DRAINAGE.--Rivers and ground water in Maine continued at slightly above normal levels from the heavy November rains and the slightly above normal December rains. The snow cover ranged from 12 inches in the northern part of Maine to 16 inches in Piscataquis County to 3 inches in the southern part of the state at the end of the month.

Minor overflows resulted in the upper Pemigewasset in New Hampshire on the 5th due to heavy rain (1.5 inches) over the upper portion of the basin early in the month, augmented by high runoff from the late November storm. Temperatures remained considerably above normal until late in the month, and ice did not begin to form on the rivers until the 20th, which is about 10 days later than usual. Snowfall was light and confined to mountain tops. No general snow cover existed until Dec. 30th; this snow mantle melted away 2 or 3 days later during a brief period of abnormally high temperatures.

The Lehigh River exceeded flood stage 2 to 6 feet on the 4-5th due to heavy rains (3 inches)on the 4th. Little damage resulted from the flooding.

Some flooding occurred along the Schuylkill River at Reading, Pa., on the 4th and 5th due to heavy rain (3.1 inches) on the 4th. Very little damage was reported. The storm reached its greatest intensity in the Blue Mountain region. Several small localities were threatened with isolation as rising water inundated low lying areas. Lowlands in Pottstown were flooded but no damage was reported to industrial sections.

The precipitation from the 3d to the 5th augmented by snow melt on the 3d caused some flooding along the upper portion of the Susquehanna River and tributaries between the 4th and 8th. Some overflow was also reported in the headwaters of the Juniata River. The snow cover averaged 3 inches deep in the upper Susquehanna Basin on the 3d with a water content of 0.6 inch; in the Chenango Basin the snow cover averaged 7 inches deep with a water content of 1.1 inches and in the Chemung Basin the snow cover averaged 4.5 inches deep with a water content of 0.75 inch. Damage was minor and limited to some lowland inundations and inconvenience.

Two significant rises occurred in the Potomac and Rappahannock River Basins during the first decade of the month. The first rise was due to heavy rains augmented by snow melt. The rain on the 3d-4th averaged 1.7 inches over the Potomac and 2.75 inches over the Rappahannock Basin. Some flooding resulted in the South Branch of the Potomac,Monocacy, lower Potomac and in the headwaters of the Rapidan and Rappahannock Rivers. The crest of 13.85 feet near Washington, D. C., at the Leiter gage was the highest stage reached at this point since September 1945 when a stage of 13.9 feet was reported. The second rise resulted a few days later from moderate rains on the 7th and 8th which averaged 0.85 inch over both basins. Some additional flooding occurred along the South Branch and the lower Potomac. Only minor damages resulted from the flooding. A few families along the lower Potomac near Washington, D. C., were forced to leave their homes.

Two minor floods occurred in the James River Basin in Virginia during the first decade of the month. The first overflow occurred at and below Bremo Bluff, on the 5-6th and the second inundation at Buchanan and below Scottsville, Va., between the 8th and 10th. The first rise was due to rain on the 3d-4th averaging 1.94 inches over the entire basin, ranging from 1.05 inches over the Craig Creek Basin to 3.41 inches over the Rockfish River Basin. This rain fell on rather dry ground and produced stages of only 0.8 foot to 2 feet above flood stage. The second rise was due to rainfall on the 7th averaging 1.28 inches over the entire basin, ranging from 0.5 inch over Wills Creek to 2.15 inches over Catawba Creek. Damage was minor and mostly to secondary roads, principally in Rockbridge County. However, in Clifton Forge flooding of numerous basements, a lumber yard, and the armory resulted in moderate nuisance damage and the city's water supply was cut off for nearly 48 hours when 80-foot sections of the two big water mains leading from the city's reservoir were torn away.

Minor flooding occurred in the Roanoke River Basin between the 5th and 19th due to heavy rain on the 4th, 5th and 7th. At Roanoke, Va., the river reached the highest stage since August 1948. No damage was reported.

Light flooding occurred on the Saluda River at Pelzer, S. C., and along the Broad River at Blairs, S. C., between the 8th and 10th due to heavy local rains of 2 to 3 inches. No damage was reported.

OHIO BASIN.--The earliest flood of record for the winter flood season developed along the entire Ohio River during December. It was the first time of record that flood stages were exceeded on three different occasions in one calendar year along the middle reach of the river from Cincinnati, Ohio, to Louisville, Ky. This flood resulted from the rapid melting of the snow cover due to high temperatures on the 2d and 3d, accompanied by some rain.

The month began with a record snow cover over more than half of the Ohio Basin as a result of the heavy snowfall in late November. Very mild temperatures which developed on Dec. 1 continued through the 4th, resulting first in rapid consolidation of the snow cover and later in rapid runoff from snow melt. Rising stages were indicated in many streams on the 2d and in all tributaries by the 3d. The heavy to excessive trend of precipitation which

prevailed throughout 1950 also continued into December. The warmer temperatures early in December that quickly changed the snow cover from stored water to runoff also changed the recent precipitation pattern from snow to rain. Moderate to heavy rain began on the 2d in the west portions of the basin and progressed rapidly eastward by the 3d, ending on the 4th. Further moderate to heavy amounts fell from the 6th through the 8th. During the 6-day period the rainfall averaged nearly 5 inches over the lower Ohio Basin and 2.5 inches over the upper basin, with local 24-hour totals exceeding 3 inches. Water content of the snow cover before the rain began averaged 1 to 2 inches over the middle tributaries of the basin and from 2 to 3 inches over the upper tributaries. Practically all of the snow cover melted during the warm weather immediately preceding and accompanying the rainy period.

All tributaries exceeded flood stage at one or more points except the Licking, Kentucky and Cumberland Rivers where only moderate rises occurred. No unusually high stages occurred on any of the tributaries. The most extensive flooding took place in the Wabash, White, Little Miami and Scioto Basins and in the Little Kanawha Basin. Rather high stages occurred on the Big Kanawha and Sandy Rivers but no extensive flooding resulted. Several reaches of the Allegheny and Monongahela Rivers, French Creek and the West Fork had rises which exceeded flood stage by 2 to 3 feet at some places. Flooding along these streams, however, was insignificant. Minor flooding occurred along the French Broad River at Asheville, N. C., on the 7th.

The main stem of the Ohio River exceeded flood stage 3 to 5 feet in the reach between Pittsburgh, Pa., and Wheeling, W. Va., and 1 to 6 feet in the reach below Wheeling to the mouth of the Kentucky River. In the reach below the mouth of the Kentucky River flood stage was exceeded by 1 to 12 feet.

All tributaries had returned to base flow between the 15th and 20th of the month and the Ohio River was at or near pool stage by the 25th, continuing so until the end of the month.

Flood damage was moderate along the Ohio River, resulting chiefly from flooded basements, evacuation and flooding of low lying houses and disruption of business in plants. There was some damage to corn on bottom lands.

Central Valleys of California and Western Nevada

The record-breaking floods that occurred over the middle and southern Sierra streams and western Nevada during the latter half of the previous month were discussed in the November issue of this publication.

The second severe flood over this same area developed within a period of two weeks following the severe floods in November. The stage for this second flood was set when heavy rain (amounts over 3.5 inches) began over the Northern Sierras on the 2d. Heavier amounts followed on the 3d with 24-hour amounts up to 4 inches over the Sierras. On the 5th there was a slight let-up but on the following day (6th) rainfall amounts up to 3 inches were reported from the Merced River to the Feather River. On the 7th and 8th, 2- to 2.5-inch amounts and over were not uncommon on each day.

During the 7-day period (Dec. 2 to Dec. 8) only the area bounded by the Feather on the north and Stanislaus on the south received rains of over 10 inches, the greatest amount falling over the central portion of the Feather watershed. During the storm in November (12th to 20th) precipitation totals of over 26 inches were reported during the 9-day period in the upper Yuba and over 14 inches along the Sierras, from the Feather River on the north to the Kaweah River on the south.

The synoptic situation of the storm in December was quite similar to the one in November in that a stationary front between Central California and the Hawaiian Islands brought a strong flow of very warm, moist air over the same area. The first of a series of waves that formed on the stationary front moved northeastward towards the northern portion of California on the 2d, with a second storm reaching the coastline on the 6th followed by a third storm on the morning of the 8th.

The weather patterns exhibited by these two storms seldom occur along the Pacific Coast during November or December.

The heavy rain of the 2d-3d produced flooding throughout the entire Russian River Basin and in the lower reaches of Corte Madera, San Lorenzo and Alameda Creeks. According to a report by the Corps of Engineers, flooding on the Russian River occurred along the whole river and was about as extensive as that of the December 1945 flood, and flooding on Corte Madera Creek was confined to the Granton Park district near Kentfield, which is a low-lying community flooded almost every year. Breaks in levees on San Lorenzo Creek were numerous and a large portion of a newly developed urban area was inundated although a considerable portion was saved by sandbagging operations. The peak discharge on Alamada Creek was considerably less than that of the Nov. 16-24, 1950, storm, but a greater area was inundated due to an additional levee break. Damages, however, were less than those of the Nov. 16-24 storm. A total of about 18,000 acres were inundated in the Russian River basin with a preliminary estimate of damage of $530,000 by the Corps of Engineers. Generally, damages in the central coastal area were confined to agricultural land, but considerable damage to urban areas, particularly in San Lorenzo Creek basin and the lower reaches of the Russian River, was reported. Fifteen persons were evacuated from the Granton Park district on Corte Madera Creek.

Record floods occurred over the north coastal area in the Smith River basin on Oct. 29, 1950, so the damages from the overflows in December were relatively minor. The flooding in the Eel River delta was about equal in severity to that in October but the resulting damage was considerably less.

Heavy precipitation again on the 6th and 7th was not sufficient to produce flooding in any of the larger drainage basins. However, some local high intensity rainfall resulted in flooding in the Guadalupe River, upper Pajaro River and Coyote Creek watersheds. The upstream reservoir at Coyote Creek spilled during the storm, but the overflow was contained in a newly constructed reservoir. There was some spill from the reservoir on Guadalupe River, which, together with runoff from the uncontrolled tributaries and extreme high tides in San Francisco Bay, caused flooding in the lower reaches of that river. Flooding during this storm was limited to the San Francisco Bay area and that portion of the Pajaro River basin inundated in the Nov. 16-24, 1950, storm. In Marin County, several low-lying districts were flooded by the high tides on the 3d-4th which was the highest since 1940.

Most flooding occurred in marsh and pasture land, however, some flooding was reported in San Rafael and other small communities. In San Mateo County, minor flooding occurred in recently developed housing districts. On the lower reaches of the Guadalupe River, inundated by flood runoff and the high tides, a considerably larger area was flooded than in the Nov. 16-24, 1950, storm. In the Pajaro River basin, the area flooded by the Nov. 16-24 storm was again inundated but with lesser damage. Approximately 10,500 acres were flooded in the San Francisco Bay area and the Pajaro River basin with a preliminary estimate of damages of $125,000, according to the Corps of Engineers. An estimated total of 20 persons were evacuated from homes in Alviso on Guadalupe Creek.

Heavy rain on the 2d and 13-14th resulted in heavy runoff with the Sacramento River rising to near flood stage above Sacramento on the 14th, and to slightly above flood stage at Knights Landing, Calif. No damages were reported in this area during the periods of high water; however, some districts where roads passed through sloughs were isolated.

Excessive rains during the first week in the foothills and mountains of the lower Sacramento Valley caused flooding in about the same districts that overflow occurred in last November. Sharp rises were experienced on the 3d in the middle Sierra Nevada streams with the American River at Sacramento reaching a crest of 42.7 feet early on the 4th. Due to the previous levee breaks, overflow began at 32 feet just east of Sacramento and inundated much of the area that had been flooded previously. The Corps of Engineers estimated a total area of about 18,000 acres flooded in the Sacramento River basin with a preliminary estimate of total damage at $600,000. Rains on the 6th and 7th resulted in two new crests on the 7th and 8th on the American, Bear, Cosumnes, Mokelumne and Stanislaus Rivers. Small areas in the lower American River and in the tidal areas of the Sacramento River were flooded, and further damages were sustained. About 1,000 persons were evacuated from suburban Sacramento.

Rains on the 3d in the lower San Joaquin Valley caused relatively high stages on most streams. Although stages were generally lower than in the November floods, the Merced River overflowed due to the fact that Exchequer Reservoir had a relatively small storage space and spilled early during the flood. The high release from Exchequer Reservoir resulted in high stages and flooding along the San Joaquin from the mouth of the Merced River to the mouth of the Tuolumne River. This area also was not inundated during the November floods. Damages in the Merced River basin alone were estimated at $1,000,000 by the Corps of Engineers. Areas flooded were largely agricultural land with some damage to residences, communication facilities, roads, etc. In the entire San Joaquin basin, a total of 72,000 acres were flooded. Rains on the 6th and 7th resulted in flooding in the section of the San Joaquin River from its mouth to the confluence with the Merced River. At San Pedro Dam, the peak flow of 65,000 cubic feet per second reached on the 8th, was the greatest flow ever recorded at that point. This resulted in widespread flooding at Modesto. Following the 9th, additional areas were flooded in the section from the Tuolumne River down through the San Joaquin Delta. Extreme high tides occurring simultaneously with flood waters of the river resulted in levee breaks and overtopping of levees in this region. The major portion of the damage for this flood period occurred in the delta islands and along the lower San Joaquin River. Smaller amounts of damage occurred along the Mokelumne, Cosumnes, Stanislaus, Tuolumne and Merced Rivers. Damages were sustained to crops, livestock, roads, communication facilities, residences, etc. About 2,000 persons were evacuated from the San Joaquin River Delta islands, 1,000 from Woodbridge on the Mokelumne River, 1,500 from Modesto on the Tuolumne, and 2,000 from other lower San Joaquin River districts. Smaller numbers of persons were evacuated from Stockton suburbs and from farmlands along the Stanislaus and Merced Rivers.

Floods in Western Nevada

Warm rains over northern and western Nevada during the first eight or nine days of the month kept streams in the Truckee, Carson and Walker basins near flood stage between the 3d and 10th. Peak flows, however, were generally less than during the severe floods of November except in the West Walker River and in some smaller streams. In the Franktown Creek near Franktown the crest on Dec. 4 was estimated between 2 and 3 times that of Nov. 19. There were two rises during December; the first, between the 3d and 5th and the second between the 8th and 10th. The first crests approached the 1937 level at several points; the second crests were lower at all stations except in the Walker River basin.

Roads and bridges were damaged in the Carson City area and some livestock were lost. In the Reno area, low farm lands east of the city were inundated until near the middle of the month.

COLUMBIA BASIN.--The freshet of Dec. 4 to 8 was very minor compared to the two previous floods this fall. This one was due to rather continuous light to moderate rainfall on saturated soil accompanied by some snow melt. Mild weather extended to the crest of the Cascades for several days causing the snow line to recede to near the 3,800- to 4,000-foot level.

The streams mostly affected by freshet conditions were those originating in the Cascades; namely the McKenzie, Santiam and Clackamas Rivers. These streams reflected the contributions of snow melt more than the others and were the largest contributors to the moderately high stages in the Willamette. Rather high stages also occurred in the Yamhill and Tualatin Rivers. There was no damage except erosion.

PUGET SOUND DRAINAGE.--Heavy rain on the 23d, ranging up to 2.5 inches in the coastal areas, augmented by snow melt, caused flooding along the lower portions of the Nooksack, Skagit, Snohomish and Snoqualmie Rivers. Strong warm frontal conditions sent temperatures as high as 60 degrees in the Seattle, Wash., area on the 23d, causing considerable runoff from snow melt. In the lower Nooksack the combination of a 9-foot tide and 1.75 inches of rain caused the river to overflow in the town of Marietta.

The lowland areas in the general vicinity of the confluence of the Pilchuck, Skykomish, and Snoqualmie were flooded. The old highway between Snohomish and Monroe was under 2.5 to 3 feet of water late on the 24th and during most of the 25th. Several hundred acres in the Monroe-Snohomish area and along the lower Snohomish were flooded. Several secondary roads and considerable pasture land were flooded in the lower Skagit Valley. Damage was negligible.

FLOOD STAGE DATA

(All dates in December unless otherwise specified)

Table 5

DECEMBER 1950

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			Ft.	
ST. LAWRENCE DRAINAGE					
Lake Erie					
St. Marys: Decatur, Ind.	13	3	10	17.8	4
St. Joseph: Montpelier, Ohio	10	4	11	12.7	9
Maumee:					
Fort Wayne, Ind.	15	3	10	18.2	8
Defiance, Ohio	10	5	6	11.3	6
Napoleon, Ohio	10	5	6	10.2	5
ATLANTIC SLOPE DRAINAGE					
Pemigewasset:					
Woodstock, N. H.	9	5	5	11.2	5
Plymouth, N. H.	11	5	5	11.9	5
Lehigh:					
Lehighton, Pa.	9	4	5	15.3	4
Allentown, Pa.	14	4	5	18.0	4
Bethlehem, Pa.	16	4	5	18.0	4
Schuylkill: Reading, Pa.	13	4	5	14.4	4
Tioughnioga: Whitney Point, N. Y.	12	4	4	13.5	4
Chenango:					
Sherburne, N. Y.	8	4	4	8.9	4
Greene, N. Y.	8	4	5	10.2	5
Binghamton, N. Y.	16	4	5	17.8	4
Chemung: Chemung, N. Y.	12	4	4	14.0	4
		8	8	13.9	8
Tunkhannock Creek: Dixon, Pa.	9	4	4	13.3	4
Little Juniata: Spruce Creek, Pa.	7	4	4	7.3	4
Susquehanna:					
Oneonta, N. Y.	12	4	7	15.1	4
Bainbridge, N. Y.	13	4	5	14.6	4
Binghamton, N. Y.	14	4	5	14.5	5
Vestal, N. Y.	18	4	5	20.3	5
South Branch: Springfield, W. Va.	15	4	4	15.5	4
		8	8	16.5	8
Monocacy: Frederick, Md.	15	5	5	16.9	5
Potomac:					
Harpers Ferry, W. Va.	18	5	5	18.8	5
Washington (near), D. C.	10	5	7	13.9	6
		9	10	12.5	9
Rapidan: Rapidan, Va.	14	4	5	17.5	4
Rappahannock: Remington, Va.	15	4	5	17.0	5
James:					
Buchanan, Va.	17	8	8	18.9	8
Bremo Bluff, Va.	19	5	5	20.0	5
		8	10	24.2	9
Columbia, Va.	18	5	6	20.0	5
		8	10	24.6	9
Richmond, Va.	8	6	6	8.8	6
		9	10	10.8	10
Roanoke:					
Roanoke, Va.	10	7	8	11.3	7-8
Alta Vista, Va.	18	8	9	22.2	8
Randolph, Va.	21	5	5	21.8	5
		9	9	22.8	9
Williamston, N. C.	10	11	19	11.1	16
Saluda: Pelzer, S. C.	6	8	10	8.5	8
Broad: Blairs, S. C.	14	8	9	17.5	9
MISSISSIPPI SYSTEM					
Ohio Basin					
French Creek: Meadville, Pa.	57	3	6	59.9	4
Allegheny:					
Warren, Pa.	14	4	4	14.6	4
Lock No. 8, near Mosgrove, Pa.:					
Lower gage	23	4	5	27.4	4
Lock No. 7, Kittanning, Pa.:					
Lower gage	24	4	5	27.6	4
Lock No. 5, Schenley, Pa.:					
Upper gage	21	4	6	22.0	4
Lower gage	27	4	5	28.6	4

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
	Ft.			Ft.	
MISSISSIPPI SYSTEM (Cont.)					
Ohio Basin (Cont.)					
Allegheny: (Cont.)					
Lock No. 4, Natrona, Pa.:					
Upper gage	20	4	5	21.3	4
Lower gage	24	4	5	27.2	4
Lock No. 3, Acmetonia, Pa.:					
Upper gage	20	4	5	20.8	4
Lower gage	25	4	5	27.3	4
Lock No. 2, Sharpsburg, Pa.:					
Lower gage	34	4	5	37.4	4
Tygart:					
Dailey, W. Va.	9	4	4	10.9	4
		8	8	10.6	8
Philippi, W. Va.	17	4	4	18.2	4
West Fork:					
Weston, W. Va.	17	3	4	18.2	4
Clarksburg, W. Va.	7	4	4	7.4	4
Monongahela:					
Lock No. 5, Brownsville, Pa.:					
Upper gage	23	4	5	24.6	4
Lower gage	29	4	5	34.5	4
Lock No. 4, Charleroi, Pa.:					
Upper gage	24	4	5	27.9	4
Lower gage	28	4	5	30.9	4
McKeesport, Pa.	12	3	5	15.2	4
Lock No. 2, Braddock, Pa.:					
Upper gage	22	3	5	25.1	4
Little Kanawha:					
Glenville, W. Va.	23	3	5	28.9	4
Creston, W. Va.	20	3	5	23.6	4
Hocking:					
Enterprise, Ohio	12	3	4	12.5	3
		7	8	12.7	7
Athens, Ohio	17	4	5	17.9	5
		8	9	18.2	9
New:					
Ivanhoe, Va.	15	--	--	17.0	8
Radford, Va.	14	7	8	16.9	8
Elk: Clay, W. Va.	18	4	4	20.5	4
Olentangy: Delaware, Ohio	9	4	4	10.0	4
Paint Creek: Bourneville, Ohio	10	3	5	14.2	3
		7	7	11.8	7
Scioto:					
La Rue, Ohio	11	3	5	13.2	4
		8	8	11.8	8
Prospect, Ohio	10	5	6	11.3	5
Circleville, Ohio	14	4	6	18.7	5
		8	9	17.6	8
Chillicothe, Ohio	16	5	6	19.1	5
		9	10	17.9	9
Piketon, Ohio	15	3	11	20.4	4
Little Miami: Kings Mill, Ohio	17	3	4	20.6	3
Green: Lock No. 2, Rumsey, Ky.	34	9	17	37.3	13
West Fork:					
Muncie, Ind.	--	--	--	7.7	4
Anderson, Ind.	10	3	5	14.4	4
Spencer, Ind.	--	--	--	17.8	8
Elliston, Ind.	18	4	12	23.0	10
Newberry, Ind.	--	--	--	16.9	10
Edwardsport, Ind.	12	3	15	19.5	11
East Fork:					
Seymour, Ind.	14	4	9	16.5	4
Bedford, Ind.	--	--	—	21.5	8, 10
White: Petersburg, Ind.	16	5	16	22.0	12, 13
Wabash:					
Bluffton, Ind.	10	3	7	12.8	5
Wabash, Ind.	12	3	9	19.6	4
La Fayette, Ind.	11	4	10	18.6	6
Covington, Ind.	16	5	12	21.4	8

FLOOD STAGE DATA

(All dates in December unless otherwise specified)

Table 5-Continued

River and station	Flood stage	Above flood stages -dates		Crest*	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM (Cont.)	Ft.			Ft.	
Ohio Basin (Cont.)					
Wabash: (Cont.)					
Montezuma, Ind.	--	--	--	19.9	9
Terre Haute, Ind.	14	5	13	16.9	11
Hutsonville, Ill.	--	--	--	19.8	13
Riverton, Ind.	--	--	-	17.3	13
Mount Carmel, Ill.	17	7	17	20.3	15
New Harmony, Ind.	15	12	18	16.1	16
French Broad: Asheville, N. C.	9	7	7	9.1	7
Tennessee: Gilbertsville, Ky.	34	8	21	37.7	18- 19
Ohio:					
Pittsburgh, Pa.	25	4	5	28.5	4 -5
Emsworth Dam, Pa.:					
Upper gage	23	4	5	25.3	4
Lower gage	27	4	5	29.1	5
Depot Lock No. 2, Neville, Pa.	26	5	6	26.6	5 -6
Dashields Locks, Glenwillard, Pa.:					
Upper gage	26	4	5	28.9	4 -5
Lower gage	27	4	6	31.5	5
Montgomery Dam, Pa.:					
Lower gage	32	4	6	36.6	5
Dam No. 7, Midland, Pa.	30	4	6	38.9	5
Dam No. 8, Newell, W. Va.	32	4	6	37.1	5
Dam No. 9, New Cumberland, W.Va.	34	4	5	36.8	5
Dam No. 10, Steubenville, Ohio	33	4	6	38.1	5
Dam No. 11, Wellsburg, W.Va.	32	4	6	38.5	5
Dam No. 12, near Wheeling, W.Va.	36	4	6	40.7	5
Dam No. 13, near Wheeling, W.Va.	37	4	6	43.5	5
Dam No. 15, New Martinsville, W.Va.	37	5	7	40.4	5
Marietta, Ohio:					
Lower gage (Muskingum)	35	5	9	38.9	6
Parkersburg, W. Va.	36	5	9	39.1	6
Dam No. 22, Ravenswood, W.Va.	44	6	7	44.9	6
Pomeroy, Ohio	43	5	11	48.5	9
Point Pleasant, W. Va.	40	4	12	47.0	9
Gallipolis Dam, Hogsett, W.Va.:					
Lower gage	50	6	7	50.1	6
Dam No. 28, Huntington, W.Va.	50	6	11	53.1	9
Dam No. 29 Ashland, Ky.	51	5	12	56.7	10
Dam No. 30, Greenup, Ky.	52	6	13	57.2	9
Portsmouth, Ohio	50	6	12	55.4	10
Dam No. 31, South Portsmouth, Ohio	52	6	12	57.8	10
Dam No. 32, near Vanceburg, Ky.	53	6	12	56.1	10
Dam No. 33, Maysville, Ky.	50	7	13	55.6	10
Dam No. 34, Chilo, Ohio	49	8	13	52.7	10
Dam No. 35, New Richmond, Ohio	48	8	13	52.9	10
Dam No. 36, Cold Spring, Ky.	52	8	13	56.5	10
Cincinnati, Ohio	52	7	14	56.0	10
Dam No. 37, Fernbank, Ohio	50	7	14	55.5	10
Dam No. 38, near Grant, Ky.	51	8	13	54.3	11
Dam No. 39, Markland, Ind.	48	10	12	48.7	11
Madison, Ind.	46	9	13	47.1	11
Dam No. 41, Louisville, Ky.:					
Upper gage	28	8	14	31.2	12
Lower gage	55	8	14	58.0	12
Dam No. 43, Evans Landing, Ind.	57	9	14	59.4	12
Dam No. 44, Leavenworth, Ind.	53	8	16	59.2	12
Dam No. 45, Addison, Ky.	47	8	16	51.2	12
Tell City, Ind.	38	7	17	44.2	13
Dam No. 46, Owensboro, Ky.	41	10	16	42.9	13
Dam No. 47, Newburgh, Ind.	38	7	19	45.2	14
Ohio: (Cont.)					
Evansville, Ind.	42	12	17	42.9	14
Dam No. 48, near Henderson, Ky.	38	8	20	44.8	14
Mount Vernon, Ind.	35	8	21	42.3	16
Dam No. 49, Uniontown, Ky.	37	9	21	43.6	16
Shawneetown, Ill.	33	7	22	43.7	17
Dam No. 50, Fords Ferry, Ky.	34	7	22	46.0	17
Dam No. 51, Golconda, Ill.	40	13	20	42.0	18
Dam No. 52, Brookport, Ill.	37	13	20	38.5	17 - 18
TULARE LAKE DRAINAGE					
Tule: Porterville, Calif.	7	4	5	8.3	5
Kings: Piedra, Calif.	10	3	4	15.0	4
PACIFIC SLOPE DRAINAGE					
San Joaquin Basin					
Chowchilla: Buchanan Dam Site, Calif.	11	4	4	12.9	4
Merced: Exchequer, Calif.	7.5	3	10	23.0	4
Mokelumne: Bensons Ferry, Calif.	12	5	6	12.5	5
		8	12	16.1	10
San Joaquin:					
Vernalis, Calif.	25	8	11	27.9	9
Lathrop, Calif.	17	9	12	22.5	10
Sacramento Basin					
American: Sacramento, Calif.	39	3	4	42.7	4
		8	9	39.8	8
Sacramento: Knights Landing, Calif.	38	9	10	38.2	9
		16	17	38.1	16
Russian Basin					
Russian: Guerneville, Calif.	29	3	5	34.7	4
Eel Basin					
Eel: Fernbridge, Calif.	17.5	3	4	20.2	4
Columbia Basin					
McKenzie:					
Leaburg, Oreg.	12	7	7	15.0	7
Coburg Bridge, Oreg.	11	7	7	11.2	7
Santiam: Jefferson, Oreg.	13	6	8	16.2	6
Willamette:					
Harrisburg, Oreg.	12	4	6	14.4	7
Oregon City, Oreg.	12	8	9	12.3	8
PUGET SOUND					
Snoqualmie: Tolt, Wash.	51.5	25	25	52.7	25
Snohomish: Snohomish, Wash.	23.6	24	25	26.4	25
Skagit:					
Concrete, Wash.	26	24	25	31.0	25
Mt. Vernon, Wash.	22	25	25	23.1	25

* Provisional.

RADIOSONDE DATA

Average monthly values

Table 20 — DECEMBER 1950

Standard pressure surface (mb)	ALBANY, N. Y. (1006 MB)				ALBUQUERQUE, N. MEX. (839 MB.)				ATLANTA, GA. (982 MB)				BIG SPRING, TEX. (927 MB.)				BISMARCK, N. DAK. (957 MB.)				BOISE, IDAHO (919 MB)				BROWNSVILLE, TEX. (1016 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	86	- 3.4	81	31	1,620	6 4	35	31	307	4 4	71	31	784	6 9	42	31	505	-10.8	81	31	868	2 6	91	30	6	16.2	90
1,000--	31	130			31	144			31	157			31	147			31	167			31	179			30	143	17.9	73
950----	31	539	- 3.6	69	31	582			31	583	4 5	63	31	578			31	566			31	603			30	588	15.9	66
900----	31	963	- 5.0	69	31	1,036			31	1,017	3.8	59	31	1,027	10 7	32	31	982	- 8.3	74	31	1,039	4 2	80	30	1,040	14.8	50
850----	31	1,411	- 6.6	65	31	1,509			31	1,480	2.7	55	31	1,502	9.8	25	31	1,428	- 6.1	66	31	1,504	3 4	73	30	1,522	13.5	37
800----	31	1,883	- 7.9	62	31	2,009	7.0	28	31	1,969	1.2	54	31	2,003	7.7	23	31	1,901	- 6.8	65	31	1,995	1.9	48	30	2,030	11 5	27
750----	31	2,389	- 9.7	60	31	2,544	4.2	27	31	2,497	- 0.9	50	31	2,539	4.9	22	31	2,410	- 8.7	62	31	2,520	- 0.3	57	30	2,573	8.9	21
700----	31	2,914	-11.5	51	31	3,093	0.6	27	31	3,035	- 3.3	48	31	3,091	1.7	24	31	2,935	-11.4	62	31	3,062	- 3 5	55	30	3,134	5 5	
650----	31	3,485	-14.6	46	31	3,689	- 2 8		31	3,625	- 6 2	44	31	3,685	- 2.0	25	31	3,512	-14.0	57	31	3,650	- 7 2	54	30	3,741	2.0	
600----	31	4,082	-17.6	42	31	4,314	- 6.4		30	4,237	-10.2	44	31	4,315	- 6.3		31	4,104	-17.6	52	31	4,264	-10.5	48	30	4,377	- 1 8	
550----	31	4,733	-21.3	39	31	4,992	-10.5		30	4,906	-14.4	43	30	4,996	-10.6		31	4,761	-21.1	48	30	4,934	-14 5	45	30	5,064	- 6.3	
500----	31	5,425	-25 9	40	30	5,718	-15.1		30	5,618	-19.2	39	29	5,725	-15.2		30	5,451	-25.5	45	29	5,645	-19.3	44	30	5,802	-11 4	
450----	31	6,185	-31.2	42	30	6,508	-20.9		30	6,400	-24.4		27	6,516	-21.1		30	6,213	-30.7	41	27	6,419	-24.6	45	30	6,605	-17.3	
400----	30	7,011	-36.2		30	7,365	-27.4		30	7,241	-30.5		26	7,369	-27.6		30	7,034	-36.3	41	27	7,264	-30.7	46	30	7,474	-23 6	
350----	30	7,925	-42.3		29	8,313	-34.8		30	8,177	-37.4		26	8,316	-34.9		30	7,946	-43.0		27	8,199	-37.7	53	30	8,436	-31 1	
300----	30	8,953	-48.1		28	9,366	-43.1		30	9,224	-45 0		26	9,371	-43.2		30	8,970	-49.8		27	9,244	-45.4		30	9,509	-39 5	
250----	30	10,141	-52.8		26	10,571	-52 2		30	10,419	-52.8		25	10,587	-51.9		30	10,148	-54.6		26	10,445	-53 3		30	10,731	-48.9	
200----	27	11,579	-55.6		23	11,988	-60.8		29	11,839	-57.3		25	12,004	-60.3		30	11,568	-55.6		21	11,842	-60.0		29	12,164	-58 4	
175----	27	12,428	-56.2		23	12,811	-64 0		29	12,677	-59.2		20	12,850	-62.9		30	12,420	-54.2		19	12,666	-60 3		28	12,994	-62.1	
150----	22	13,424	-56.0		22	13,750	-64.1		27	13,634	-58 5		16	13,800	-65.7		28	13,403	-54.3		16	13,645	-59.1		26	13,939	-64 9	
125----	18	14,590	-56.5		22	14,861	-65 4		25	14,768	-60.3		14	14,912	-66.6		25	14,564	-55.3		14	14,785	-59 5		26	14,955	-67.1	
100----	12	16,029	-58.0		20	16,209	-67.0		23	16,152	-62.6		13	16,256	-68 6		20	15,984	-56 7		13	16,169	-59 7		25	16,379	-70.6	
80-----	6	17,428	-58.6		13	17,550	-65 9		18	17,522	-63.3		11	17,584	-68.1		17	17,394	-57.0		12	17,552	-59 7		18	17,709	-70.6	
60-----					9	19,306	-64 6		8	19,273	-61.8		[illegible]	19,318	-64.2		13	19,211	-57.8		[illegible]	19,324	-60.1		9	19,434	-67 4	
50-----					7	20,413	-63.5		6	20,403	-60 2		6	20,438	-61.2		6	20,348	-57.7						5	20,545	-64 3	
40-----																									5	21,927	-58 4	

Standard pressure surface (mb)	BUFFALO, N. Y. (989 MB)				BURRWOOD, LA. (1018 MB)				CAMAGUEY, CUBA (1003 MB)				CARIBOU, MAINE (992 MB)				CHARLESTON, S. C. (1017 MB.)				CIUDAD VICTORIA, MEX. (976 MB.)				COLUMBIA, MO. (989 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	221	- 3.2	75	31	3	13.1	86	31	122	18 1	94	31	191	- 5.4	80	31	13	5.3	77	29	335	21.5	41	31	239	- 2.3	74
1,000--	31	136			31	154	14.5	73	31	147	18 6	91	31	125			31	154	8.2	62	29	125			31	151		
950----	31	546	- 4 1	72	31	591	12.4	68	31	596	18.7	79	31	532	- 4.5	71	31	583	7.6	60	29	571	20.5	41	31	563	- 0 6	55
900----	31	967	- 5 7	67	31	1,039	10.3	61	31	1,053	16.2	72	31	953	- 5.6	68	31	1,023	6.2	59	29	1,034	16.9	45	31	992	- 1 2	55
850----	31	1,413	- 7.6	65	31	1,513	7.9	56	31	1,538	13.8	63	31	1,400	- 7.0	66	31	1,490	4.4	54	29	1,519	13.5	47	31	1,447	- 2.0	55
800----	31	1,884	- 9 2	62	31	2,011	5.9	51	31	2,047	11 9	45	31	1,872	- 8.0	62	31	1,982	2 3	49	29	2,026	10.8	46	31	1,928	- 3.4	53
750----	31	2,388	-10.9	59	31	2,544	3.6	38	31	2,591	9 3	40	31	2,377	- 9.7	53	31	2,509	0.2	45	29	2,568	8.7	42	31	2,441	- 5.4	51
700----	31	2,909	-13.1	53	31	3,094	0 8	33	31	3,155	6.4	30	31	2,903	-11.6	48	31	3,053	- 2 1	40	29	3,131	5.4	42	31	2,975	- 7.7	50
650----	31	3,479	-15.6	49	31	3,690	- 2.4	35	31	3,766	3 1		30	3,477	-14.6	49	31	3,644	- 5.3	39	29	3,737	1.8	31	31	3,557	-10.3	44
600----	30	4,062	-19.2	48	31	4,317	- 6.3	35	30	4,404	- 0.5		30	4,068	-18.1	47	30	4,261	- 9 0	38	29	4,375	- 1.4		31	4,161	-13.5	41
550----	29	4,708	-22.8	47	31	4,995	-10.4	36	30	5,094	- 4 6		30	4,723	-22.1	46	30	4,932	-13.1	37	29	5,066	- 5.4		31	4,822	-17.5	40
500----	29	5,395	-27.0	44	31	5,720	-15.3	35	30	5,838	- 9 4		30	5,409	-26.5	47	30	5,649	-18.0	35	29	5,806	-10.5		30	5,520	-22.1	37
450----	28	6,153	-31.9	45	31	6,514	-20.8	36	30	6,648	-15 3		30	6,165	-31.7	49	30	6,432	-23.8	40	28	6,613	-16.5		30	6,288	-27.6	36
400----	28	6,975	-37.8		31	7,369	-26 8	38	30	7,524	-21.7		30	6,986	-37.3	51	30	7,279	-30.1	39	27	7,498	-23.3		30	7,123	-33.6	36
350----	28	7,883	-43 6		31	8,319	-33 8		30	8,227	-28.8		30	7,897	-42 9		30	8,216	-36.9		27	8,445	-30.9		30	8,047	-40.3	
300----	27	8,909	-49.2		31	9,381	-41.6		30	9,580	-36 7		29	8,939	-49.0		30	9,266	-44.8		27	9,520	-39.3		30	9,083	-47.1	
250----	22	10,090	-53.4		29	10,594	-49.9		30	10,817	-46.6		28	10,136	-52.8		29	10,463	-52.3		27	10,744	-48.8		29	10,277	-53.2	
200----	17	11,538	-54.5		27	12,024	-58.2		30	12,262	-57 5		27	11,557	-55.2		29	11,887	-57.7		25	12,174	-58.6		28	11,706	-56.5	
175----	12	12,374	-52.1		27	12,857	-61.3		30	13,096	-62.5		27	12,409	-54.7		[illegible]	12,734	-59.4		22	13,012	-62.6		[illegible]	12,553	-56.1	
150----	9	13,370	-51.8		23	13,799	-62.5		29	14,035	-66 4		23	13,409	-54.7		26	13,701	-60.0		20	13,957	-64.9		28	13,532	-56 2	
125----	7	14,525	-53.1		18	14,928	-64.4		29	15,151	-69.7		20	14,553	-54.9		25	14,838	-61.5		19	15,059	-68.3		27	14,692	-57 1	
100----					16	16,280	-68.0		27	16,443	-75.0		14	15,999	-56.5		22	16,213	-63.9		11	16,401	-71.6		26	16,099	-58 7	
80-----					9	17,608	-68 0		27	17,734	-75 4		8	17,364	-57.3		18	17,579	-64.5		9	17,706	-72.5		20	17,512	-59.5	
60-----									22	19,432	-66 3						[illegible]	19,327	-61.2		6	19,406	-67.7		14	19,308	-60 3	
50-----									19	20,549	-61.8						5	20,455	-61.4		5	20,512	-63.9		12	20,450	-59 3	
40-----									17	21,935	-58 7										5	21,892	-59.5		[illegible]	21,831	-59.0	

Standard pressure surface (mb)	DODGE CITY, KANS (925 MB)				EL PASO, TEX (883 MB.)				ELY, NEV. (811 MB.)				GLASGOW, MONT (940 MB)				GRAND JUNCTION, COLO (855 MB.)				GREAT FALLS, MONT (885 MB)				GREENSBORO, N. C. (986 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	792	0.4	56	31	1,195	11.0	30	31	1,908	0.2	70	31	648	- 8.8	82	31	1,474	1.5	65	31	1,128	0.7	62	31	273	0.5	74
1,000--	31	159			31	133			31	181			31	159			31	184			31	135			31	156		
950----	31	578			31	575			31	612			31	564			31	614			31	561			31	574	2.6	56
900----	31	1,018	5.0	43	31	1,034			31	1,059			31	984	- 4.9	69	31	1,054			31	999			31	1,007	1 2	56
850----	31	1,484	4.2	43	31	1,512	13 3	23	31	1,524			31	1,435	- 2.8	59	31	1,518			31	1,456	1 3	53	31	1,465	- 0 3	55
800----	31	1,975	2.1	43	31	2,018	10.2	24	31	2,018	3 9	53	31	1,915	- 4.0	53	31	2,011	3.2	48	31	1,942	- 0 9	55	31	1,948	- 2.1	50
750----	31	2,499	- 0.2	42	31	2,557	7.5	26	31	2,550	2.5	47	31	2,425	- 6 2	58	31	2,537	0 5	48	31	2,459	- 3.5	59	31	2,467	- 3 9	44
700----	31	3,043	- 3.2	41	31	3,116	4.1	26	31	3,096	- 0.8	46	31	2,959	- 9 2	58	31	3,082	- 2.5	46	31	2,996	- 6 8	60	31	3,002	- 6.1	39
650----	31	3,629	- 6.9	43	31	3 717	0.4		31	3,689	- 4 1	44	31	3,536	-12.3	53	31	3,674	- 5.7	46	31	3,576	-10.2	57	31	3,587	- 8 7	36
600----	31	4,245	-10.6	42	29	4,350	- 3.7		31	4,312	- 7.5	41	31	4,136	-15.9	54	31	4,291	- 9.1	43	31	4,183	-13 8	54	31	4,196	-12.1	
550----	31	4,913	-14 9	41	29	5,036	- 8 2		31	4,986	-11.6	38	31	4,791	-19.7	52	31	4,962	-13.2	44	31	4,841	-18.1	52	30	4,862	-16.6	34
500----	31	5,624	-19.6	39	29	5,765	-13.3		31	5,708	-16.6	39	31	5,488	-24.2	52	31	5,678	-17.9	41	31	5,545	-22 7	50	29	5,565	-21 4	
450----	31	6,398	-24.9	39	29	6,560	-19.2		31	6,496	-22 0	39	31	6,251	-29.8	50	31	6,460	-23.4	42	30	6,307	-28 8	47	29	6,339	-26 5	
400----	31	7,245	-30.9	38	28	7,426	-25.9		31	7,347	-28 5	41	31	7,077	-36.1	49	31	7,309	-29.6	42	30	7,137	-35.2	46	27	7,165	-32.7	
350----	31	8,180	-37.6		27	8,378	-33.2		31	8,290	-35.4	40	31	7,990	-42.6		31	8,247	-36.4	43	29	8,061	-41.6		26	8,101	-39 4	
300----	31	9,225	-45.1		25	9,442	-41.6		31	9,345	-43.4		31	9,016	-49.2		31	9,298	-44.1		29	9,089	-48 7		26	9,140	-46.4	
250----	31	10,421	-52.8		23	10,653	-51.1		31	10,546	-52.9		29	10,204	-55.1		31	10,497	-52.9		28	10,277	-55.2		26	10,330	-53 2	
200----	31	11,839	-58.8		22	12,074	-60 5		30	11,958	-60.9		26	11,615	-57.2		31	11,908	-60.3		22	11,687	-58 1		22	11,751	-57.0	
175----	30	12,669	-60.3		20	12,903	-63 3		30	12,784	-62.4		24	12,472	-56.9		31	12,738	-61 6		13	12,487	-56.6		22	12,593	-57 8	
150----	29	13,628	-59.4		17	13,846	-65 2		30	13,734	-62.2		24	13,450	-55.7		31	13,691	-62.2		11	13,454	-56 4		22	13,563	-58 5	
125----	28	14,771	-59 5		15	14,955	-67.4		29	14,856	-63.0		24	14,610	-56.1		30	14,818	-62.1		10	14,596	-55.4		22	14,707	-59 5	
100----	27	16,159	-61.5		11	16,307	-70.1		29	16,225	-63.9		24	16,024	-57.4		30	16,194	-63.1		6	16,027	-57 0		21	16,099	-61 2	
80-----	24	17,541	-62 0		7	17,625	-69.1		23	17,594	-63 7		18	17,434	-56.9		25	17,554	-63 3		5	17,437	-57.3		20	17,485	-62 1	
60-----	19	19,326	-61.5		7	19,352	-65 9		17	19,361	-62.7		14	19,239	-57.3		13	19,324	-62.3						11	19,262	-61 3	
50-----	16	20,461	-60 7		6	20,470	-63 8		13	20,488	-61.4		9	20,375	-57.6		[illegible]	20,461	-61.5						7	20,402	-60 7	
40-----	10	21,849	-59.5						6	21,853	-59 3		5	21,800	-58.2													

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb.)	HATTERAS, N. C. (1017 MB.)				HAVANA, CUBA.				HILO, T. H (1012 MB.)				INTERNAT. FALLS, MINN (973 MB.)				JOLIET, ILL (995 MB.)				LAKE CHARLES, LA. (1018 MB.)				LANDER, WYO (828 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	3	6.8	76					31	[illegible]	22.8	79	30	361	-16.2	78	30	179	- 8.7	84	31	5	10 2	84	30	1,696	- 1.0	55
1,000--	31	145	7.4	68					31	111	22.1	78	30	156			30	141			31	152	11.7	74	30	151		
950----	31	573	5.6	61					31	561	18.7	81	30	545	-15.1	75	30	545	- 6.5	73	31	582	10 6	73	30	578		
900----	31	1,008	4.1	58					31	1,017	15.5	84	30	953	-14.1	74	30	964	- 6.1	65	31	1,031	9 2	68	30	1,022		
850----	31	1,471	2.1	58					31	1,501	12.5	86	30	1,389	-12.8	73	30	1,412	- 6.0	59	31	1,503	7.5	62	30	1,481		
800----	31	1,959	0.5	53					31	2,009	10 9	73	30	1,851	-12.7	68	30	1,886	- 6.7	55	31	2,001	5.4	56	30	1,970	2.0	46
750----	31	2,482	- 1.8	51					31	2,555	9.0	57	30	2,349	-13.3	64	30	2,396	- 8.5	52	31	2,533	3.1	43	30	2,497	- 0.1	43
700----	31	3,021	- 4.3	47					31	3,116	6.6	47	30	2,866	-14.9	61	30	2,921	-10.9	49	31	3,082	0.3	32	30	3,038	- 3.3	43
650----	31	3,609	- 7.6	44					31	3,721	3.6	39	30	3,432	-17.7	59	30	3,496	-13.8	49	31	3,678	- 2.8	33	30	3,626	- 7.1	43
600----	31	4,220	-10.9	40					31	4,367	- 0.1		30	4,018	-20.6	53	30	4,092	-16.9	46	31	4,302	- 6.7		30	4,240	-10.9	40
550----	31	4,891	-14.6	37					31	5,058	- 4.2		30	4,660	-24.6	50	30	4,745	-20.5	42	31	4,983	-11.0		30	4,908	-15 1	41
500----	31	5,600	-19.0	38					31	5,804	- 9.1		30	5,344	-29 1	51	30	5,440	-25.0	43	31	5,701	-16.1		30	5,616	-20 0	39
450----	31	6,377	-24.4	39					30	6,615	-14.5		30	6,089	-34.4	50	30	6,205	-30.5	43	30	6,493	-21.7		30	6,394	-25 9	40
400----	31	7,224	-30.5	40					30	7,495	-20.7		29	6,900	-40.1		30	7,024	-36.4	44	30	7,347	-28.1		30	7,230	-31 9	41
350----	31	8,158	-37.5						29	8,470	-27.6		29	7,799	-46.0		30	7,937	-42.6		30	8,290	-35.1		30	8,160	-38 6	42
300----	31	9,205	-45.0						29	9,560	-35.5		27	8,819	-51.0		27	8,954	-49.0		30	9,346	-43.0		30	9,202	-46 2	
250----	31	10,402	-52.1						29	10,805	-44.8		26	9,994	-52.5		27	10,137	-53.7		30	10,552	-51.5		30	10,391	-54 2	
200----	31	11,827	-57.0						28	12,263	-55.2		24	11,442	-51.4		23	11,561	-54.8		28	11,969	-59 1		30	11,800	-59 9	
175----	29	12,674	-58.4						26	13,105	-60 1		23	12,310	-51.1		18	12,403	-53.9		28	12,800	-61.4		28	12,628	-60 2	
150----	28	13,639	-58.9						14	14,079	-63 9		22	13,317	-51.3		15	13,378	-53.4		[illegible]	13,753	-62 5		28	13,588	-59 6	
125----	28	14,779	-59.9						10	15,188	-68.7		18	14,498	-52.3		15	14,547	-54.5		27	14,869	-64 8		28	14,732	-58 8	
100----	26	16,158	-61.5						5	16,522	-73.6		18	15,924	-53.5		13	15,979	-55 2		27	16,219	-67 5		28	16,127	-60 4	
80-----	22	17,528	-61.6										16	17,371	-54 1		10	17,401	-56.9		21	17,565	-67 0		26	17,516	-60.0	
60-----	12	19,310	-61.0										5	19,231	-54.9						13	19,307	-64 1		19	19,305	-60.2	
50-----	6	20,468	-60.0																		11	20,429	-62 4		13	20,441	-59 4	
40-----																					6	21,788	-59 9		6	21,839	-58 6	

Standard pressure surface (mb.)	LAS VEGAS, NEV (940 MB.)				LITTLE ROCK, ARK. (1010 MB)				MAZATLAN, MEXICO (1010 MB.)				MEDFORD, ORE (971 MB.)				MERIDA, MEXICO (1014 MB.)				MIAMI, FLA. (1018 MB)				NANTUCKET, MASS. (1013 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	660	10.2	31	31	79	3 6	70	31	14	23.7	76	31	401	6.7	94	31	27	21 7	72	31	4	17.5	78	28	14	3 4	80
1,000--	31	140			31	156	4 0	64	31	102	23 0	73	31	154			31	146	21.3	70	31	156	18 8	69	28	120	3.0	73
950----	31	573			31	581	4 3	60	31	556	22.5	51	31	583	7.1	82	31	588	19 1	66	31	595	16 0	71	28	539	1 6	75
900----	31	1,030	14 7	[illegible]	31	1,013	3.1	59	31	1,018	20 5	44	31	1,024	7.4	71	31	1,052	16.1	67	31	1,052	13.2	70	28	969	- 0 3	66
850----	31	1,511	12.2	28	31	1,477	2.8	56	31	1,509	17.6	38	31	1,494	6.1	62	31	1,536	12.8	68	31	1,532	11 0	60	28	1,426	- 1 9	64
800----	31	2,015	9 3	31	31	1,966	1.2	51	31	2,024	14 5	29	31	1,989	3.4	61	31	2,043	9 9	62	31	2,035	8.9	48	28	1,906	- 3 6	60
750----	31	2,551	6.3	29	31	2,490	- 1 0	45	31	2,569	10.9	26	31	2,517	0.7	59	31	2,586	8.5	37	31	2,575	6 6	43	28	2,421	- 5.2	50
700----	31	3,109	3 3	29	31	3,031	- 4.0	44	31	3,137	7 5		31	3,061	- 2.1	56	31	3,145	6 4		31	3,131	3.6	43	28	2,954	- 7 8	47
650----	31	3,711	- 0.2		31	3,620	- 6.9	40	31	3,745	3.5		31	3,652	- 5.5	51	31	3,755	3 6		31	3,731	0 6	34	28	3,535	-10.7	45
600----	31	4,341	- 4 1		31	4,232	-10.2	39	31	4,387	- 0.8		31	4,269	- 9.6	51	31	4,395	0.1		31	4,367	- 3.1	31	28	4,139	-14 0	44
550----	31	5,025	- 8.7		31	4,901	-14.3		31	5,073	- 5.4		31	4,939	-13.7	46	31	5,088	- 4.3		31	5,052	- 7 2		28	4,798	-17.9	44
500----	31	5,754	-13.9		30	5,613	-18.9		30	5,814	-10.8		31	5,653	-18.5	43	31	5,830	- 9.4		31	5,787	-12.0		[illegible]	5,501	-22 7	45
450----	31	6,547	-19.6		30	6,392	-24.6		30	6,617	-16.8		30	6,432	-23.8	42	31	6,641	-15.3		31	6,590	-17.2		28	6,268	-28 1	45
400----	31	7,410	-25.9	34	30	7,236	-31.0		30	7,489	-23.3		30	7,279	-29.9	45	31	7,515	-22.4		31	7,459	-23.2		[illegible]	7,101	-33 5	46
350----	31	8,361	-33.4		30	8,168	-38.1		29	8,450	-30.9		30	8,216	-36.9	47	31	8,482	-29.6		31	8,423	-30 4		27	8,015	-39.9	
300----	31	9,425	-41.6		29	9,222	-46.0		28	9,522	-39.5		30	9,264	-45.0		31	9,562	-38 1		31	9,499	-38.6		27	9,052	-46 9	
250----	31	10,635	-51.2		27	10,413	-54.0		28	10,743	-49.0		30	10,459	-53.4		30	10,791	-47.7		31	10,727	-47.6		25	10,248	-53.1	
200----	31	12,053	-60.3		24	11,819	-58.1		27	12,172	-58.8		28	11,875	-60.7		28	12,223	-58.6		30	12,171	-57.8		20	11,665	-56.0	
175----	31	12,878	-63.0		23	12,659	-59.1		25	13,004	-63.2		28	12,702	-62.0		27	13,051	-63.5		29	13,006	-61 9		18	12,512	-56 6	
150----	31	13,822	-64.5		22	13,622	-59.1		25	13,943	-66.4		27	13,660	-60.2		26	13,985	-67.2		29	13,952	-64.4		18	13,487	-57 2	
125----	29	14,938	-65.0		18	14,762	-60 9		19	15,058	-69.0		27	14,795	-61.3		19	15,071	-71.1		26	15,055	-67 6		13	14,641	-57 6	
100----	29	16,289	-67.4		16	16,142	-62.8		16	16,379	-72.9		25	16,176	-61.9		17	16,378	-75.8		25	16,389	-71.5		10	16,030	-59 5	
80-----	27	17,639	-67.0		14	17,509	-63.2		14	17,675	-75.4		16	17,550	-61.8		13	17,667	-75.5		21	17,688	-71.8		5	17,415	-59.0	
60-----	[illegible]	19,374	-64.5		8	19,281	-61.9		8	19,367	-69.1		[illegible]	19,323	-60.0		6	19,360	-66.9		15	19,398	-66 8					
50-----	17	20,490	-63.2						6	20,473	-65.1										12	20,503	-62 6					
40-----	16	21,872	-60.7																		7	21,904	-57 2					
30-----	5	23,681	-57.9																									

Standard pressure surface (mb.)	NASHVILLE, TENN (998 MB)				NORTH PLATTE, NEBR (918 MB)				OAKLAND, CALIF (1019 MB.)				OKLAHOMA CITY, OKLA. (972 MB)				OMAHA, NEBR (982 MB)				PHOENIX, ARIZ (976 MB)				PITTSBURGH, PA (972 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	30	177	1 0	74	31	849	- 2.5	74	31	6	11 6	81	31	391	2.7	60	31	308	- 4.4	71	31	338	11 7	44	30	382	- 3.1	75
1,000--	30	160			31	155			31	162	11.7	78	31	156			31	160			31	132			30	153		
950----	30	573	0.8	61	31	574			31	596	11.2	73	31	577	6.0	51	31	572	- 4 0	61	31	574	19.5	21	30	564	- 2.6	73
900----	30	1,007	- 0.5	58	31	1,004	1 1	58	31	1,043	10.9	59	31	1,017	5.3	47	31	993	- 3.3	58	31	1,032	17 1	20	30	988	- 4.2	67
850----	30	1,463	- 1 5	53	31	1,464	1.2	49	31	1,518	9.1	51	31	1,483	5.1	40	31	1,445	- 3 3	56	31	1,516	13 8	21	30	1,437	- 6.5	67
800----	30	1,945	- 2.6	52	31	1,950	- 0.9	52	31	2,019	7.1	43	31	1,976	3.0	37	31	1,923	- 4.4	55	31	2,024	10.9	22	30	1,910	- 8.0	66
750----	30	2,462	- 4.3	48	31	2,468	- 3.1	51	31	2,555	4.6	40	31	2,505	0.7	39	31	2,435	- 5.8	50	31	2,564	7 8	24	30	2,418	- 9.4	61
700----	30	2,997	- 6.6	47	31	3,006	- 6 2	50	31	3,106	1.6	38	31	3,048	- 2.2	37	31	2,969	- 8.2	48	31	3,123	4 2		30	2,941	-11.2	54
650----	30	3,581	- 9.3	42	31	3,588	- 9.6	52	31	3,700	- 2.2	38	31	3,640	- 5.7	38	31	3,549	-11.5	46	31	3,725	0.7		30	3,520	-13.0	44
600----	30	4,188	-12.8	39	31	4,196	-13.3	49	31	4,332	- 5.8	38	31	4,256	- 9.4	39	31	4,151	-14.9	44	31	4,360	- 3.2		30	4,115	-16.3	43
550----	30	4,852	-16.7	34	30	4,862	-17.5	44	30	5,009	-10.2	36	31	4,928	-13.4	35	31	4,812	-18.6	42	31	5,045	- 7.5		29	4,773	-19.8	41
500----	30	5,556	-21.3	33	30	5,562	-22.0	42	30	5,737	-15.5	38	31	5,642	-18.4	35	31	5,510	-23.1	38	31	5,778	-12 7		29	5,465	-24.4	37
450----	30	6,329	-26.7	33	30	6,338	-27.1	43	29	6,525	-21.4	39	30	6,423	-24.1	38	31	6,278	-28.6		31	6,577	-18.9		29	6,229	-29.7	
400----	30	7,165	-32.4		30	7,167	-33.0	44	29	7,380	-27.9		30	7,270	-30.3	36	31	7,107	-34.9		30	7,440	-25 5		29	7,054	-35.6	
350----	29	8,091	-39.5		30	8,093	-39.7		29	8,325	-35.2		30	8,206	-37.3		31	8,028	-40.9		30	8,393	-32 9		29	7,969	-42 0	
300----	29	9,129	-47.1		30	9,129	-47.3		29	9,382	-42.7		29	9,264	-44.7		30	9,060	-48.0		30	9,459	-41 1		27	8,992	-48.4	
250----	28	10,308	-53.7		30	10,314	-54.1		28	10,594	-51.8		27	10,456	-52.5		31	10,245	-54 0		27	10,675	-50 6		26	10,185	-53.3	
200----	26	11,736	-57.8		30	11,729	-58.7		25	12,012	-59.9		26	11,870	-59 4		31	11,663	-57.4		27	12,095	-60 1		24	11,618	-55.7	
175----	24	12,574	-57.9		30	12,564	-59.4		22	12,828	-62.4		26	12,702	-60.9		28	12,506	-56 9		23	12,927	-63 5		23	12,475	-55 8	
150----	23	13,544	-58.0		29	13,531	-58.4		21	13,784	-63.3		26	13,663	-61.5		27	13,486	-56.6		22	13,862	-65 8		21	13,442	-55.1	
125----	21	14,688	-58.8		25	14,670	-58.8		[illegible]	14,898	-63.4		23	14,792	-61.3		26	14,640	-57 1		17	14,983	-67.7		16	14,601	-55.9	
100----	19	16,084	-60.9		22	16,077	-60.5		16	16,274	-65.4		22	16,173	-63.7		25	16,045	-58.5		15	16,314	-70 2		14	16,030	-56.9	
80-----	16	17,470	-61.3		19	17,466	-60.8		13	17,627	-65.1		21	17,542	-63.6		21	17,440	-59 4		13	17,638	-68 6		11	17,441	-58.2	
60-----	10	19,243	-61.3		12	19,265	-61.2		11	19,388	-63.6		12	19,306	-62.5		14	19,246	-60 4		10	19,370	-67 2		7	19,265	-59 0	
50-----	[illegible]	20,375	-60.5		9	20,394	-60.8		10	20,519	-63.3		9	20,438	-60.8		[illegible]	20,358	-59 0		7	20,488	-65 6					
40-----					6	21,774	-59 1		[illegible]	21,897	-61.2		7	21,827	-59.1													

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

DECEMBER 1950

Standard pressure surface (mb.)	PORTLAND, MAINE (1013 MB.)				RAPID CITY, S. DAK (904 MB)				ST. CLOUD, MINN. (978 MB)				SAN ANTONIO, TEX. (989 MB.)				SAN JUAN, P R. (1013 MB.)				SANTA MARIA, CALIF (1010 MB)				S.STE MARIE, MICH. (0986 MB)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	20	- 2.0	82	29	966	- 4 1	67	31	317	-12.6	82	31	240	9.9	58	31	19	23.6	86	31	71	11.7	89	31	221	- 6.9	80
1,000--	31	120	- 1 1	65	29	153			31	148			31	148			31	132	23.7	79	31	152	13.3	80	31	113		
950----	31	531	- 1.6	65	29	569			31	548	-11.0	74	31	579	13.9	50	31	584	21.0	79	31	592	14.7	62	31	517	- 7.5	78
900----	31	959	- 3 1	60	29	997			31	957	- 9.7	73	31	1,035	11.7	50	31	1,047	17.8	78	31	1,043	14.0	42	31	933	- 9 2	78
850----	31	1,410	- 4.7	63	29	1,454	- 0 4	50	31	1,400	- 8.1	65	31	1,512	10 3	44	31	1,534	14.9	75	31	1,523	12 1	37	31	1,373	-11.1	80
800----	31	1,886	- 6 3	63	29	1,938	- 2.6	51	31	1,870	- 8.9	60	31	2,015	8.9	31	31	2,046	12 9	65	31	2,028	9.6	35	31	1,837	-12 6	75
750----	31	2,394	- 8.0	56	29	2,454	- 5 0	51	31	2,376	-10.4	56	31	2,553	6 8	26	31	2,594	11.3	49	31	2,569	6 9	34	31	2,335	-14.1	69
700----	31	2,924	-10 5	48	29	2,986	- 7.7	51	31	2,898	-12 5	50	31	3,110	3.6	25	30	3,161	8.4	41	31	3,124	4 0		31	2,849	-16.3	68
650----	31	3,496	-13.5	44	29	3,566	-11 0	47	31	3,470	-15.1	47	30	3,710	- 0 0	24	30	3,779	5.0	41	31	3,730	0 3	28	31	3,413	-18.9	66
600----	31	4,096	-16 8	45	29	4,169	-14.4	45	31	4,062	-18.1	47	30	4,344	- 4.0		30	4,418	1.3	39	31	4,360	- 3.9	33	31	3,997	-21 8	61
550----	31	4,744	-20.6	46	29	4,829	-18 4	42	31	4,713	-21 9	45	30	5,022	- 8.5		28	5,116	- 2.7		31	5,046	- 8 4	31	31	4,638	-25.5	56
500----	31	5,443	-25 6	47	29	5,528	-22.9	40	31	5,402	-26 3	45	29	5,759	-13.7		27	5,865	- 7.0		31	5,775	-13.2		31	5,318	-30 0	53
450----	30	6,197	-31 0	46	29	6,295	-28.0	39	31	6,160	-31.7	42	29	6,551	-19 6		27	6,688	-12.0		31	6,573	-19 0		31	6,064	-34.8	53
400----	29	7,031	-36.3		29	7,128	-33 9		30	6,979	-37 2	41	28	7,416	-26.0		27	7,571	-18.2		31	7,436	-25.4		30	6,864	-39 9	
350----	26	7,913	-43.2		29	8,050	-40 7		30	7,888	-43.7		28	8,366	-33.7		27	8,553	-25.8		31	8,391	-32 5		30	7,765	-45.4	
300----	25	8,945	-49.1		27	9,084	-47.7		30	8,910	-49.5		28	9,428	-42.0		27	9,650	-34.3		31	9,460	-40.7		30	8,780	-50 4	
250----	22	10,113	-54.3		26	10,273	-54.4		30	10,092	-53.0		28	10,637	-50.6		27	10,898	-44.4		31	10,675	-50.2		30	9,962	-51 9	
200----	19	11,516	-55.0		22	11,675	-58.6		30	11,527	-53.5		27	12,059	-58.0		26	12,352	-56.3		29	12,097	-59.2		29	11,410	-51 7	
175----	15	12,350	-55.0		18	12,508	-58.7		30	12,386	-52.9		22	12,898	-60.7		26	13,188	-62.3		28	12,927	-62 4		28	12,274	-51.4	
150----	14	13,317	-55.0		18	13,477	-57.5		29	13,380	-53.1		21	13,850	-63.3		25	14,130	-67.7		28	13,872	-64.2		25	13,286	-52.1	
125----	12	14,453	-54.8		18	14,628	-57.7		28	14,556	-53.9		17	14,983	-65.5		25	15,215	-72.3		26	14,991	-65 2		23	14,455	-53.1	
100----	10	15,871	-56.9		17	16,030	-58.8		26	15,987	-55 3		16	16,327	-67.9		20	16,512	-77.4		25	16,339	-67.1		21	15,894	-54.6	
80-----	8	17,287	-57.1		16	17,433	-58 9		21	17,419	-55.8		14	17,665	-68.4		13	17,797	-78.6		19	17,702	-66 4		20	17,317	-55.6	
60-----					11	19,229	-58.3		15	19,239	-56.4		13	19,402	-65.3						13	19,463	-65.3		13	19,128	-56.7	
50-----					6	20,366	-59.2		10	20,421	-56.5		7	20,511	-63.1						11	20,577	-63.0		7	20,253	-58.3	
40-----													5	21,898	-59.0						5	21,973	-61.5					

Standard pressure surface (mb.)	SPOKANE, WASH (932 MB.)				SWAN IS, W. I. (1015 MB.)				TACUBAYA, MEXICO (774 MB)				TAMPA, FLA. (1018 MB.)				TATOOSH ISLAND, WASH. (1009 MB.)				TOLEDO, OHIO (994 MB)				WASHINGTON, D. C (1007 MB.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
SURFACE	31	722	1.2	92	31	10	23.9	77	31	2,306	12 9	39	31	9	13.0	83	31	31	8.2	87	31	191	- 5.6	81	31	88	0 3	68
1,000--	31	154			31	136	23.6	78	31	83			31	160	14.8	73	31	103			31	143			31	146		
950----	31	574			31	593	20.2	80	31	541			31	597	13.5	60	31	528	6.3	82	31	550	- 5.0	72	31	561	- 0.2	62
900----	31	1,008	2.3	83	31	1,048	16.9	80	31	1,015			31	1,047	11.5	60	31	967	3.9	81	31	972	- 6.3	66	31	989	- 2.1	60
850----	31	1,469	1 1	79	31	1,534	13.8	77	31	1,502			31	1,524	9.2	53	31	1,430	1.4	79	31	1,417	- 7 4	62	31	1,442	- 3 3	59
800----	31	1,955	- 1.4	75	31	2,044	12.1	60	31	2,027			31	2,024	6.9	50	31	1,916	- 1.2	75	31	1,889	- 8.1	57	31	1,920	- 4.7	58
750----	31	2,472	- 3.8	70	31	2,595	10.2	51	31	2,573	12.4	38	31	2,560	4.5	46	31	2,434	- 3.7	67	31	2,395	- 9 6	51	31	2,431	- 6.6	52
700----	31	3,009	- 6 4	62	31	3,155	7.4	38	31	3,142	8 6	40	31	3,111	1.5	43	31	2,971	- 6.1	59	31	2,919	-11 8	48	31	2,963	- 9.0	49
650----	31	3,591	- 9 7	56	31	3,771	4.2	35	31	3,757	3 9	40	31	3,706	- 1.8	38	31	3,554	- 9.5	55	31	3,492	-14.4	45	31	3,539	-11.8	43
600----	31	4,200	-13.3	52	31	4,409	.8		31	4,397	- 0.4	35	31	4,337	- 5.2	35	31	4,161	-13.3	54	31	4,086	-17.7	40	31	4,143	-15.0	42
550----	31	4,857	-17.4	52	31	5,108	- 3.1		31	5,093	- 4.2		31	5,020	- 9.1	33	31	4,819	-17.4	50	30	4,735	-21.4		30	4,794	-19.1	42
500----	30	5,562	-22 1	52	31	5,851	- 7.6		31	5,833	- 8.9		31	5,746	-13.9	33	31	5,526	-22.2	48	30	5,427	-25.6		30	5,494	-24.0	40
450----	30	6,332	-27.3	54	31	6,669	-13.2		31	6,649	-14.8		31	6,543	-19.5		31	6,293	-27.8	46	29	6,179	-31.0		30	6,259	-28.9	
400----	30	7,166	-33 9	54	31	7,549	-19.9		31	7,522	-21.8		31	7,403	-25.7		31	7,128	-33.7	46	29	7,002	-36 7		30	7,087	-35.0	
350----	28	8,098	-40.7		31	8,524	-27.1		30	8,492	-29.3		30	8,353	-33.3		31	8,051	-40.3		29	7,914	-43.1		30	8,005	-41.3	
300----	28	9,130	-47 9		29	9,615	-35.8		28	9,504	-38.0		30	9,418	-40.7		31	9,086	-47.6		25	8,934	-49 0		30	9,037	-47.6	
250----	26	10,325	-54.5		29	10,854	-46.0		25	10,811	-47.7		29	10,641	-49.2		30	10,273	-53.3		22	10,084	-53.0		30	10,224	-53.0	
200----	24	11,740	-58.9		29	12,299	-57.4		23	12,249	-58.7		29	12,073	-58.4		28	11,708	-56.2		20	11,503	-53 2		29	11,653	-56.3	
175----	23	12,582	-58.8		29	13,131	-63.0		19	13,077	-63.9		29	12,906	-61.2		25	12,563	-56.5		20	12,362	-53.2		27	12,511	-57.2	
150----	22	13,555	-56 9		27	14,066	-67.1		13	14,010	-67.4		28	13,852	-63.4		22	13,531	-56.7		17	13,354	-53.6		27	13,486	-57 4	
125----	21	14,716	-58.2		22	15,153	-71.2		11	15,102	-70.2		26	14,959	-66.4		15	14,665	-56.2		16	14,526	-54.7		26	14,639	-58.2	
100----	18	16,108	-59.4		16	16,453	-76.3						25	16,303	-69.1		13	16,072	-56.0		10	15,950	-57.1		21	16,031	-59.7	
80-----	17	17,508	-58.4		10	17,745	-78.0						19	17,624	-68.8		9	17,493	-57.4		7	17,345	-58.4		21	17,422	-60.1	
60-----	11	19,328	-58.8		8	19,407	-70.2						13	19,357	-65.2		8	19,292	-57.5		5	19,160	-58.8		17	19,196	-60 5	
50-----					7	20,509	-64.2						11	20,480	-61.5										12	20,326	-59 5	
40-----					7	21,892	-58.9						9	21,877	-58.0										7	21,699	-59 6	

Note: All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

Table 21

DECEMBER 1950

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	290	1.5	31	287	1.4	26	292	2.7	30	250	3.6	26	319	2.9	24	19	1.4	31	131	1.8	29	250	3.1	26	181	1.7	27	267	1.7	29	251	1.4	31	257	2.1
500	--	---	----	--	---	----	26	289	3.3	--	---	----	--	---	----	--	---	----	31	159	2.3	29	247	5.5	26	208	3.5	27	259	3.1	29	226	2.2	--	---	----
1,000	30	261	2.5	--	---	----	23	286	4.8	--	---	----	26	311	6.8	24	51	1.5	28	220	1.6	23	254	6.4	22	240	4.4	24	282	6.6	25	239	5.1	--	---	----
1,500	28	254	4.2	--	---	----	20	286	8.7	30	265	8.1	20	311	7.7	23	165	1.7	27	272	3.6	16	249	7.4	17	246	6.7	22	282	9.9	20	269	5.8	31	269	3.2
2,000	27	270	6.9	31	290	3.2	18	280	9.7	29	279	10.3	17	304	9.7	21	244	3.7	25	283	5.1	14	256	8.3	14	246	9.4	22	277	11.7	17	282	8.0	31	277	4.4
2,500	27	280	9.3	30	309	6.7	18	279	12.7	26	282	11.4	14	310	12.9	18	259	6.9	24	288	7.5	13	260	9.7	10	236	10.5	22	277	13.7	15	279	8.8	31	288	7.0
3,000	27	285	10.7	29	309	10.4	16	278	13.2	25	294	13.3	14	312	14.9	15	259	8.4	24	288	8.7	13	256	10.6				22	273	15.1	13	292	11.5	31	295	9.2
4,000	27	297	14.2	28	311	14.0	14	288	15.1	20	299	17.7	14	312	17.9	12	271	11.0	22	291	9.2							18	274	18.5				31	300	10.2
5,000	23	294	15.9	27	307	16.6	10	290	18.6	19	303	20.4	12	313	20.9	12	282	14.5	19	296	11.0							15	273	21.8				29	303	13.4
6,000	23	296	19.7	26	313	19.3				13	302	20.4	11	315	20.4				18	289	12.5							12	276	23.1				29	304	15.8
8,000	13	316	22.1	24	313	21.4													14	284	17.7													23	312	15.7
10,000				19	305	24.8																												19	307	21.7
12,000				12	304	34.2																												12	309	28.4

Altitude (meters) m.s.l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (574 m.)			Little Rock Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	308	1.1	31	287	0.7	28	262	1.7	29	259	3.1	29	298	0.5	29	256	2.4	31	50	1.2	31	298	0.7	18	333	1.5	31	95	1.2	27	302	0.7	30	289	1.1
500	--	---	----	--	---	----	28	261	3.0	--	---	----	29	271	3.0	29	269	3.1	--	---	----	31	266	1.0	18	339	1.3	31	79	.7	26	237	.9	30	262	1.6
1,000	--	---	----	--	---	----	28	259	5.0	29	261	7.0	29	259	5.1	27	286	3.6	31	37	1.5	28	273	3.1	17	162	2.5	29	252	.9	24	281	3.8	25	261	4.3
1,500	--	---	----	31	285	.6	26	260	6.8	29	275	10.7	29	274	7.4	21	295	6.2	31	358	1.0	26	298	6.2	14	213	4.3	28	287	2.5	21	286	8.5	23	274	7.8
2,000	31	300	1.1	30	298	.6	23	270	10.2	28	282	11.2	24	280	10.1	20	298	8.4	31	280	2.0	25	298	9.0	10	216	8.4	25	282	4.0	19	292	10.9	19	279	9.8
2,500	31	283	1.6	29	267	3.1	21	272	12.6	27	285	12.4	22	279	12.8	19	310	10.9	31	283	3.4	23	300	11.6				22	271	5.8	16	296	12.9	19	280	11.8
3,000	31	285	3.4	29	275	5.6	17	265	14.2	25	290	14.8	21	278	14.4	16	311	12.5	31	284	5.2	21	300	13.5				20	275	7.2	16	293	14.0	17	287	14.7
4,000	27	290	7.9	27	306	10.2	17	267	16.0	21	298	17.4	19	269	17.3	14	305	16.7	31	297	7.5	19	301	17.8				18	269	11.7				15	290	19.8
5,000	22	284	11.0	23	320	14.7	10	276	20.8	15	303	18.8	15	279	18.9	11	314	19.5	30	290	10.1	14	309	21.9				13	267	14.8				12	288	22.9
6,000	17	279	11.4	19	309	16.6				13	309	20.7	13	272	22.3				27	287	12.6	10	303	22.5				11	265	18.5						
8,000	12	284	17.2	15	312	26.3													20	296	16.9															
10,000				12	300	29.6													13	281	15.7															

Altitude (meters) m.s.l.	New York, N. Y. (15 m.)			Oakland Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich (221 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	27	295	3.1	25	203	0.3	31	317	0.7	31	303	1.7	31	180	0.1	30	338	4.7	27	301	2.2	28	275	1.6	31	141	0.5	29	285	2.7	22	291	1.8	26	162	2.0
500	26	280	4.1	25	55	.8	31	315	.9	31	293	1.8	31	90	.1	--	---	----	27	306	3.6	28	276	3.3	31	200	.5	28	316	2.7	22	291	2.7	26	197	6.3
1,000	25	272	4.8	20	355	2.1	30	273	2.1	28	287	4.9	31	106	.5	30	335	4.9	23	299	5.4	21	274	6.4	31	237	1.5	28	289	.6	13	270	2.2	20	205	7.5
1,500	18	271	5.6	19	329	2.2	30	280	4.8	24	290	8.7	31	146	.2	30	317	8.8	19	305	8.6	20	286	8.8	30	267	4.6	27	315	.4				17	209	10.6
2,000	14	272	5.2	17	324	1.9	29	288	7.8	23	288	10.5	31	290	1.0	30	313	11.3	16	302	11.9	19	288	11.3	30	279	7.1	27	304	2.3				14	219	10.6
2,500	11	266	5.8	17	341	2.5	29	295	8.7	21	295	11.5	31	292	3.1	28	312	14.8	16	305	13.3	19	291	12.6	30	278	8.7	27	298	3.7						
3,000				17	313	4.9	28	300	10.7	20	297	12.4	31	298	3.9	24	316	17.0	14	309	17.4	18	296	13.7	29	286	10.4	26	293	4.9						
4,000				12	293	8.7	26	292	13.3	16	300	16.2	29	301	7.0	19	316	20.7	14	311	22.0	15	302	14.4	28	291	12.9	25	296	6.6						
5,000							25	299	17.0	14	297	18.3	25	303	9.4	15	314	23.0	13	308	25.1	13	310	18.2	27	293	16.3	22	284	8.0						
6,000							23	299	20.7	13	298	23.1	23	299	9.2				10	317	28.4	11	313	18.4	26	295	18.7	19	285	9.2						
8,000							14	306	29.3				15	314	8.9										14	293	21.1	17	285	12.4						
10,000																												14	291	14.0						

Altitude (meters) m.s.l.	Spokane, Wash. (725 m.)			Washington, D. C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	20	188	1.4	27	301	1.5
500	--	---	---	27	286	3.7
1,000	20	189	3.4	26	294	5.9
1,500	15	233	5.7	23	289	7.8
2,000	11	243	6.9	21	278	10.0
2,500				19	278	11.1
3,000				16	280	14.3
4,000				13	278	16.9
5,000				13	279	18.9

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

Table 22 — **DECEMBER 1950**

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrwood, La. (3 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			International Falls, Minn. (358 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	49	0.9	31	101	2.4	31	356	0.9	30	128	1.3	31	31	1.4	31	256	1.2	31	266	0.9	31	260	0.8	31	86	0.9	31	332	1.4	31	297	2.7	30	312	2.2
500	--	---	----	--	---	----	--	---	----	30	162	4.4	31	207	.4	31	225	2.8	31	261	3.8	31	256	4.0	--	---	----	31	295	2.8	31	276	5.1	29	326	3.5
1,000	--	---	----	31	203	1.2	31	317	4.2	30	187	2.5	31	256	3.2	31	234	4.0	30	276	6.5	31	276	6.2	--	---	----	31	276	4.3	30	268	6.7	29	341	5.2
1,500	--	---	----	31	286	5.6	31	309	6.3	30	288	2.1	31	268	6.0	30	240	5.5	30	269	8.5	31	290	8.1	31	90	.8	30	272	6.4	30	261	8.2	29	337	7.2
2,000	31	308	4.8	31	299	8.2	31	311	8.6	30	303	4.9	30	271	7.6	29	244	7.2	30	264	10.9	30	298	8.9	30	158	.2	30	270	9.3	29	262	10.3	29	328	9.4
2,500	31	309	7.8	31	305	9.7	31	311	11.2	30	297	6.6	30	273	9.2	29	237	9.0	30	266	13.4	30	301	10.3	30	262	1.9	29	272	11.1	29	258	12.5	29	323	10.2
3,000	31	307	8.9	31	308	11.0	31	311	13.5	30	295	7.8	29	268	10.4	29	237	10.1	30	265	15.6	30	2[illegible]	11.8	29	282	5.2	28	271	12.8	29	250	14.8	28	325	10.6
4,000	31	313	12.7	30	308	13.5	30	311	15.9	28	293	8.7	29	272	13.8	29	230	12.7	26	269	17.5	29	297	13.8	29	308	9.8	26	267	14.9	26	255	17.4	27	317	12.0
5,000	29	314	14.9	25	311	15.8	29	309	18.3	28	294	10.8	27	272	15.2	26	239	15.8	25	263	21.0	28	298	15.7	30	307	14.6	24	264	17.0	24	260	21.3	25	315	12.4
6,000	24	313	15.9	22	309	17.1	25	307	19.1	28	293	12.7	26	271	19.4	25	234	18.3	24	262	22.7	25	287	16.9	30	308	19.0	23	263	21.2	22	255	24.3	23	302	12.4
8,000	21	315	19.3	17	312	19.1	17	301	20.1	22	275	16.0	20	273	24.5	21	235	19.3	18	261	28.8	17	278	18.2	25	304	23.8	18	253	24.6	13	253	26.0	20	302	13.2
10,000	15	312	17.2	12	316	19.0	14	306	21.7	16	275	17.6	12	275	32.6	16	247	23.1	12	254	32.4	10	270	18.1	11	315	23.5	13	249	32.3	10	257	26.7	14	322	14.8
12,000				11	307	23.4	12	303	20.9	11	285	17.9				11	246	18.7																13	309	13.7

Altitude (meters) m.s.l.	Little Rock, Ark. (80 m.)			Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	16	0.5	30	79	0.2	31	52	0.5	28	299	0.9	30	235	0.7	31	93	0.7	31	120	1.1	31	347	1.8	31	7	1.9	31	148	1.6	30	322	1.6	31	45	0.6
500	31	271	1.4	30	125	.5	31	93	1.5	28	238	4.2	29	249	2.6	31	113	.5	30	156	1.5	--	---	----	31	134	1.6	31	87	6.1	30	316	2.9	31	29	2.4
1,000	31	295	3.7	30	172	3.2	31	214	.2	27	226	6.4	29	251	4.6	31	251	1.6	29	227	3.9	31	345	1.8	31	213	2.0	31	84	6.5	30	328	5.4	31	351	2.0
1,500	29	299	6.7	30	204	6.3	31	238	1.7	23	227	9.1	29	270	6.5	31	258	3.2	29	266	4.7	30	311	8.0	31	265	4.5	31	83	6.0	30	315	7.9	31	309	1.6
2,000	29	295	10.1	30	230	8.7	31	245	2.9	21	230	9.8	30	271	9.0	30	259	3.7	30	288	6.7	30	313	11.7	31	289	7.4	31	79	5.5	30	313	9.5	31	300	3.2
2,500	29	292	13.0	30	235	10.6	31	250	4.5	21	238	11.4	28	280	10.9	30	268	5.6	31	294	8.6	29	313	13.6	31	293	9.6	31	81	4.8	28	312	9.5	31	290	5.6
3,000	29	290	14.9	30	244	12.0	31	255	6.8	16	226	13.0	27	286	13.3	30	271	7.1	30	299	10.5	29	313	15.7	31	290	11.1	31	75	3.6	28	306	11.1	31	275	7.0
4,000	28	288	17.2	29	250	14.6	31	253	10.3	15	230	13.8	26	283	16.5	29	257	9.7	26	301	13.4	26	310	18.3	30	288	12.3	31	66	2.5	27	302	12.2	31	278	9.6
5,000	26	295	18.4	24	251	17.4	30	257	13.7	13	227	18.1	26	280	18.7	26	264	12.1	23	289	15.4	25	317	21.2	30	294	14.8	29	355	2.0	25	306	13.4	31	277	11.9
6,000	24	288	22.3	19	246	20.0	29	256	17.2				24	281	21.0	23	274	13.4	25	294	17.1	20	314	20.3	29	293	17.4	27	302	4.3	21	302	14.2	29	276	13.8
8,000	18	282	25.3	15	259	23.5	25	267	22.4				19	276	25.9	18	263	17.1	21	283	19.3	15	308	25.3	22	296	20.1	27	290	11.4	17	275	14.2	25	284	17.7
10,000							22	267	29.0				13	273	25.6				16	291	20.1				14	279	22.1	27	284	21.6	12	268	19.3	22	263	20.7
12,000							15	258	36.9										13	292	19.9							26	276	29.4				14	269	22.7
14,000							11	257	31.9										10	288	21.5							25	279	26.9				11	277	21.4
16,000																												22	282	17.4						
18,000																												11	306	8.2						

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	230	0.8	31	170	1.7	30	127	4.7
500	30	267	3.3	--	---	----	29	174	5.7
1,000	30	284	6.2	31	205	4.4	27	200	5.9
1,500	29	280	6.9	31	234	7.7	27	210	7.0
2,000	27	282	8.6	31	249	9.0	27	216	8.5
2,500	27	283	9.6	31	259	10.4	26	226	9.9
3,000	27	282	10.9	31	264	12.1	26	236	10.4
4,000	25	279	12.3	27	268	14.3	24	248	12.4
5,000	24	279	13.8	26	275	16.6	19	253	13.6
6,000	21	274	13.6	23	283	18.3	17	260	16.2
8,000	14	260	14.3	16	273	24.4	11	244	20.4
10,000							11	243	24.4

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA National Summary.

SOLAR RADIATION DATA

Table 30.–Solar radiation intensities, tabulated in langleys per minute. DECEMBER 1950

TABLE MOUNTAIN, CALIF.

Date	Sun's zenith distance: A.M. 78.7°	75.7°	70.7°	60.0°	0.0°	P.M. 60.0°	70.7°	75.7°	78.7°	Vapor pressure, E.S.T. 7:30 a.m.	1:30 p.m.
	Air mass: 3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76		
										Mb.	Mb.
December											
8	----	----	----	1.52	----	----	----	----	----		
9	1.20	1.29	1.39	1.51	----	----	----	----	----		
10	----	----	----	1.51	----	----	----	----	----		
17	1.18	1.27	1.37	1.50	----	----	----	----	----		
19	----	----	----	1.48	----	----	----	----	----		
20	----	----	----	1.50	----	----	----	----	----		
23	----	----	----	1.51	----	----	----	----	----		
24	----	----	----	1.55	----	----	----	----	----		
Averages	1.19	1.28	1.38	1.51	----	----	----	----	----		
Departures	-.04	-.03	-.03	-.02	----	----	----	----	----		

LINCOLN, NEBR.

	Air mass: 4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77		
										Mb.	Mb.
December											
8	----	----	----	----	----	----	1.09	0.96	0.85	2.3	5.8
9	0.96	1.07	1.18	----	----	----	----	----	----	5.8	4.6
11	.88	1.03	1.18	----	----	----	1.20	1.09	1.01	7.8	11.4
12	.85	.96	1.15	----	----	----	1.18	1.05	.96	4.2	6.4
22	----	----	----	----	----	----	1.12	.97	.88	3.5	13.2
28	.85	.98	1.15	----	----	----	----	----	----	3.2	10.2
Averages	.88	1.01	1.17	----	----	----	1.15	1.02	.92	---	----
Departures	-.06	-.06	-.04	----	----	----	-.04	-.03	-.02	---	----

MADISON, WIS.

	Air mass: 4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81		
										Mb.	Mb.
December											
4	0.92	1.03	1.14	----	----	----	----	----	----	1.5	2.7
15	.84	.95	1.08	----	----	----	----	----	----	1.9	2.2
18	.84	.96	1.14	----	----	----	1.10	----	----	.4	1.2
20	.86	.96	1.14	----	----	----	----	----	----	1.7	2.2
26	.98	1.08	1.24	----	----	----	----	----	----	1.4	1.2
27	.96	1.11	1.18	----	----	----	1.22	----	----	.3	.6
Averages	.90	1.02	1.15	----	----	----	1.16	----	----	---	---
Departures	+.01	.00	-.02	----	----	----	-.03	----	----	---	---

TACUBAYA, D.F., MEXICO

	Air mass: 3.83	3.07	2.31	1.53	*0.77	1.53	2.31	3.07	3.83		
										Mb.	Mb.
December											
1	0.49	0.62	0.76	1.24	----	----	----	----	----	5.4	6.3
2	.62	.75	.67	.80	----	1.54	1.20	1.12	0.99	9.1	8.9
4	.65	.84	.85	1.05	----	----	----	----	----	6.8	7.6
5	.58	.83	1.07	1.35	----	1.35	.85	.74	.55	7.6	9.2
6	----	----	----	----	----	1.15	.91	.86	.81	8.0	8.1
7	.77	.59	.87	1.21	----	.62	.33	.22	.15	5.6	6.9
8	----	.41	.65	.52	----	.90	.90	.75	.68	6.3	7.2
9	.41	.44	.45	.73	----	.93	.82	.58	.54	6.4	4.5
10	1.04	1.14	1.29	1.25	----	1.18	----	----	----	5.9	6.7
11	.45	.62	.61	.95	----	1.35	1.02	.91	.80	5.1	5.7
12	.81	.81	.90	1.20	----	.88	.54	.36	.27	4.0	3.6
13	.48	.76	.58	.91	----	.69	.46	.30	.21	4.9	4.7
14	.66	.84	.77	.95	----	.84	.69	.60	.47	5.4	4.5
15	.55	.54	.77	.91	----	1.15	----	----	----	5.1	4.4
16	.54	.66	.52	.52	----	1.22	----	----	----	4.4	3.6
18	----	----	----	----	----	1.04	1.11	.83	.75	7.4	8.5
19	.58	.66	.55	.86	----	1.29	.96	.76	.53	5.7	8.1
20	.64	.57	.77	1.00	----	1.07	.67	.57	.54	4.3	6.0
21	----	----	.73	1.05	----	1.26	1.13	.43	.41	4.0	3.7
22	.35	.52	.80	1.05	----	----	----	----	----	4.8	5.6
23	.23	.56	.74	.86	----	----	.75	----	----	5.7	7.4
26	.46	.53	.85	1.14	----	----	----	----	----	6.0	6.7
27	.33	.64	.73	.88	----	----	----	----	----	6.0	6.9
28	.74	.95	1.11	1.33	----	1.18	1.05	.85	.80	6.4	5.6
29	.88	.97	1.04	----	----	----	----	.80	.73	6.9	6.4
31	----	----	----	----	----	----	.82	----	----	6.8	9.1
Averages	.58	.69	.79	.99	----	1.09	.84	.67	.58	---	---
Departures	----	----	----	----	----	----	----	----	----	---	---

ALBUQUERQUE, NEW MEXICO

	Air mass: 4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08		
No record											

BOSTON, MASS.

	Air mass: 4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96		
										Mb.	Mb.
December											
6	0.79	0.98	1.07	----	----	----	1.18	0.90	0.72	2.9	3.5
13	.72	.86	1.07	----	----	----	----	----	----	3.7	2.7
14	.38	.58	.70	----	----	----	.77	----	----	3.5	3.2
19	.63	.78	.97	----	----	----	.93	.82	.71	2.0	1.7
27	----	----	1.14	----	----	----	1.27	1.17	1.03	1.0	1.0
28	.65	.79	1.08	----	----	----	----	----	----	1.4	2.5
Averages	.63	.80	1.01	----	----	----	1.04	.96	.82	---	---
Departures	-.09	-.05	00	----	----	----	+.01	+.05	+.01	---	---

BLUE HILL, MASS.

	Air mass: 4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86		
										Mb.	Mb.
December											
2	0.99	1.07	1.20	----	----	----	----	----	----	3.3	3.5
3	----	----	.77	----	----	----	----	----	----	6.8	9.6
10	.83	.93	1.09	----	----	----	----	----	----	4.9	5.2
13	.76	1.00	1.09	----	----	----	1.09	.93	.81	3.4	2.4
14	.43	.58	.77	----	----	----	----	----	----	3.0	2.8
19	----	.90	1.03	----	----	----	.97	.86	.74	2.0	2.1
21	.97	1.07	1.13	----	----	----	.83	.73	.66	1.8	2.0
25	.97	1.09	----	----	----	----	----	----	----	1.6	1.2
27	1.06	1.16	1.29	----	----	----	1.31	1.19	1.07	0.8	1.1
28	.82	.94	1.09	----	----	----	1.17	1.09	.95	1.4	2.6
30	----	----	1.13	----	----	----	1.15	.99	.87	5.4	5.1
Averages	.85	.97	1.06	----	----	----	1.09	.97	.85	---	---
Departures	-.06	-.07	-.11	----	----	----	-.06	-.07	-.11	---	---

* Extrapolated

Solar radiation intensities are expressed in gram-calories per minute per square centimeter of normal surface.

An explanation of Tables 30 and 33 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

SOLAR RADIATION DATA

Table 31.–Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during December 1950

Date----------	3	4	5	6	7	8	9	Average	10	11	12	13	14	15	16	Average	17	18	19	20	21	22	23	Average
Langleys-------	361	56	34	514	28	24	200	174	382	48	171	487	392	93	68	234	98	39	468	371	460	106	204	249
Date----------	24	25	26	27	28	29	30	31	Average															
Langleys-------	67	329	43	601	522	32	508	34	267															

Table 32.–Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during December 1950

Date----------	3	4	5	6	7	8	9	Average	10	11	12	13	14	15	16	Average	17	18	19	20	21	22	23	Average
Langleys-------	41	34	24	41	22	10	37	30	39	27	35	40	37	33	21	33	39	24	39	42	38	36	40	37
Date----------	24	25	26	27	28	29	30	31	Average															
Langleys-------	37	45	28	62	58	21	40	20	39															

Note.–Langley is the unit used to denote one gram calorie per square centimeter.

SOLAR RADIATION DATA

Table 33.-Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. DECEMBER 1950

1950	Honolulu, T.H.	Pearl Harbor, T.H.	Brownsville, Texas	Gainesville, Fla.	Apalachicola, Fla.	Lake Charles, La.	El Paso, Texas	Fort Worth, Texas	Charleston, S.C.	Griffin, Ga.	Phoenix, Ariz.	Riverside, Calif.	Santa Maria, Calif.	Albuquerque, N.Mex.	Inyokern, Calif.	Hatteras, N.C.	Raleigh, N.C.	Oak Ridge, Tenn.	Las Vegas, Nev.	Nashville, Tenn.	Stillwater, Okla.	Fresno, Calif.	Davis, Calif.	Washington, D.C.	Ely, Nev.	Seabrook, N.J.	Indianapolis, Ind.	Grand Lake, Colo.	Salt Lake City, Utah	New York, N.Y.	Sayville, N.Y.	State College, Pa.	Lincoln, Nebr.
December 3--	87	70	413	125	114	358	370	362	54	54	317	164	71	328	164	241	220	17	128	7	289	8	38	182	67	205	51	70	23	74	136	194	241
December 4--	326	398	413	243	370	336	287	229	281	328	293	121	292	289	281	182	49	287	267	252	89	245	174	42	175	21	254	110	33	14	15	51	129
December 5--	362	315	189	346	370	64	(355)	78	263	202	359	276	257	292	289	293	317	227	268	64	90	46	104	251	270	209	110	309	145	207	211	262	216
December 6--	358	308	384	197	52	324	385	381	212	51	348	266	293	346	275	266	267	128	271	3	293	115	40	129	94	136	37	258	106	221	244	169	175
December 7--	223	228	393	290	371	351	357	180	(112)	151	291	183	91	254	269	92	36	59	241	148	157	150	53	31	137	111	116	102	95	43	39	11	201
December 8--	400	371	394	268	293	143	364	304	206	179	350	264	182	309	308	124	213	189	283	108	262	266	68	109	112	74	221	52	45	56	39	162	229
December 9--	335	330	372	331	280	352	353	332	68	87	336	265	321	306	306	179	42	81	289	199	258	254	226	258	251	222	207	107	190	187	190	196	220
Averages-----	299	289	366	257	264	275	(355)	267	(171)	150	328	220	215	303	270	197	163	141	250	112	206	155	100	143	158	140	142	144	91	115	125	149	202
Departures---	-6	-3	---	+4	-29	+2	-4	-1	---	---	+8	-4	-13	-3	+7	---	---	---	+9	-11	-28	---	-24	-63	---	---	-7	---	-23	-28	-9	+5	+16	+30
December 10--	326	325	407	348	345	365	353	354	303	117	337	256	307	318	312	208	27	126	290	47	287	247	110	57	224	51	91	229	176	111	146	70	139
December 11--	304	269	412	313	348	342	366	336	302	228	315	177	100	308	208	208	231	126	213	70	261	75	71	142	112	33	181	261	35	25	110	80	226
December 12--	284	249	393	---	338	305	340	155	220	247	331	248	294	313	---	216	257	56	283	24	143	153	203	129	246	165	138	121	81	130	96	121	131
December 13--	297	464	355	315	355	244	359	185	291	261	267	157	171	307	(190)	287	250	87	203	121	218	95	61	222	227	210	52	145	21	160	165	135	216
December 14--	439	343	373	---	321	(193)	348	284	47	23	263	117	42	204	213	135	139	136	211	191	247	163	81	176	159	170	58	104	23	149	148	143	219
December 15--	318	320	---	150	231	204	359	(86)	62	37	273	232	291	284	264	198	113	91	270	192	205	221	210	86	165	152	210	95	96	52	38	37	196
December 16--	353	406	---	72	191	37	364	235	301	269	335	216	281	309	284	283	267	265	278	199	205	120	124	210	224	165	240	118	79	50	61	170	181
Averages-----	332	339	388	240	305	241	355	(234)	218	169	303	200	212	292	245	219	184	127	250	121	224	154	109	146	194	135	139	153	73	97	109	108	187
Departures---	-16	-8	---	+9	+12	-11	+4	-6	---	---	-8	-11	-19	-6	---	---	---	-19	+1	-2	---	-15	-50	+6	---	-10	---	-12	-52	-20	-21	-5	+25
December 17--	483	458	---	---	282	341	357	303	(119)	266	333	258	307	283	297	139	154	82	285	139	269	92	165	142	248	166	185	206	20	159	148	149	147
December 18--	415	371	359	360	384	302	352	291	(262)	315	300	184	198	314	(249)	217	309	283	238	205	257	129	37	206	228	219	236	206	66	205	173	110	98
December 19--	354	385	365	342	(325)	311	347	216	272	294	323	257	302	300	299	253	313	(217)	263	113	174	218	165	138	148	201	115	189	45	208	215	110	191
December 20--	439	448	411	319	308	129	345	120	272	304	325	246	289	312	299	209	181	---	275	135	159	28	187	95	256	164	176	103	37	203	242	90	87
December 21--	461	405	344	319	194	102	367	137	289	228	305	250	268	312	303	266	288	(214)	271	138	218	41	41	180	241	204	98	246	43	194	183	100	114
December 22--	449	440	249	248	231	243	330	211	279	284	258	188	309	296	299	236	149	88	269	147	225	35	49	49	243	93	115	259	14	67	101	---	212
December 23--	390	428	317	360	347	319	261	301	299	297	335	261	318	319	305	257	288	238	281	231	247	53	41	---	249	152	183	268	35	159	186	83	138
Averages-----	427	419	341	325	(296)	250	337	226	(256)	284	311	235	284	305	(293)	226	240	(187)	244	158	221	85	99	135	230	171	158	211	37	171	178	107	141
Departures---	+46	+34	---	+99	+19	+11	-6	-15	---	---	+4	+23	+16	+6	---	---	---	-6	-4	+8	---	-57	-26	-12	---	+17	---	+22	-64	+57	+33	---	-26
December 24--	432	445	387	326	345	314	352	310	301	268	335	276	317	320	---	279	290	131	278	210	249	41	39	---	251	79	230	194	35	44	49	77	71
December 25--	350	406	325	369	340	323	356	345	316	310	339	271	310	321	---	275	212	166	273	187	235	112	36	---	247	168	77	235	29	132	119	161	164
December 26--	438	419	388	250	326	225	355	324	293	113	325	259	305	302	---	287	284	83	221	56	258	58	41	(170)	244	69	210	173	9	15	15	64	214
December 27--	466	439	344	203	133	61	297	128	36	92	325	240	320	314	---	42	137	141	278	221	175	38	72	251	252	251	226	235	34	234	258	235	208
December 28--	263	304	189	214	47	53	366	305	58	28	328	253	310	272	295	118	50	70	256	49	250	160	122	74	214	160	243	141	42	165	234	254	211
December 29--	138	277	212	91	110	91	310	156	30	84	300	190	314	295	---	91	89	58	254	53	68	156	89	65	232	41	202	140	77	31	10	148	155
December 30--	343	384	341	33	41	338	360	328	29	67	319	252	118	303	---	49	32	50	207	92	256	95	164	121	64	178	148	158	42	152	---	50	216
December 31--	258	223	97	369	357	295	353	334	222	311	146	264	326	212	---	63	249	270	257	208	269	116	271	181	225	155	183	172	242	147	---	185	150
Averages-----	336	362	285	232	212	213	343	279	160	159	302	251	290	293	---	150	168	121	253	135	220	97	104	(143)	216	138	190	181	64	115	114	147	174
Departures---	-22	-1	---	-29	-49	-3	+7	+41	---	---	+3	+38	+8	+9	---	---	---	+66	-6	+28	---	-43	-26	-2	---	-5	---	-19	-76	-8	-6	+37	+13

Accumulated Departures January 1 to December 31, 1950

	-224	+553	---	+4998	---	---	---	---	---	---	---	-3892	---	---	---	---	---	---	---	-1071	---	+9121	-7525	---	---	---	---	---	---	-6265	---	---	+2653

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Table 33.-Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.(Continued.) DECEMBER 1950

1950	Upton, N.Y.	Cleveland, Ohio	Newport, R.I.	Put-in-Bay, Ohio	East Wareham, Mass.	Blue Hill, Mass.	Boston, Mass.	Medford, Oreg.	Amherst, Mass.	Lynn, Mass.	Ithaca, N.Y.	Albany, N.Y.	Lander, Wyo.	East Lansing, Mich.	Madison, Wis.	Boise, Idaho	Portland, Me.	Toronto, Ontario	Rapid City, S.Dak.	Ottawa, Ontario	St. Cloud, Minn.	North Head, Wash.	Sault Ste. Marie, Mich.	Bismarck, N.Dak.	Caribou, Me.	Great Falls, Mont.	Spokane, Wash.	Seattle, Wash. (Un. of Wash.)	Glasgow, Mont.	Winnipeg, Manitoba	Edmonton, Alberta	Fairbanks, Alaska	Aklavik, Mackenzie
December 3--	139	39	186	45	178	187	150	37	156	131	169		202	5	144	31	174	41	147	---	231	35		---	25	71	74	37	117	124	90	7	1
December 4--	22	24	57	59	76	82	68	139	31	74	18		128	11	192	111	99	59	74	---	149	72		77	24	142	249	77	155	125	105	4	2
December 5--	210	44	87	80	45	53	44	51	189	57	181		188	33	71	177	88	95	229	---	137	35		198	29	194	120	33	179	148	107	5	2
December 6--	220	78	224	90	232	221	184	64	236	194	243		137	15	38	27	238	35	252	---	117	34		203	168	72	54	105	120	174	73	7	1
December 7--	56	34	54	50	55	42	34	85	32	31	41		211	1	27	60	111	6	185	96	75	78		97	168	92	66	53	66	65	105	5	2
December 8--	55	202	9	192	21	22	11	148	13	9	61		215	41	82	94	67	52	200	293	120	106		114	97	103	83	102	164	72	107	7	2
December 9--	198	188	158	200	193	123	129	168	69	117	165		210	71	80	85	126	60	202	70	173	20		79	6	132	66	22	169	62	71	6	2
Averages-----	129	87	111	102	114	104	89	99	104	99	125		184	25	91	84	129	50	184	---	143	54		128	74	115	102	61	138	110	94	6	2
Departures---	+10	---	-27	-15	-22	-31	-12	-3	---	-4	+23		-1	-58	-26	-17	-10	-15	+6	---	-6	---		---	-1	-2	+9	---	---	+4	+6	00	00
December 10--	150	99	176	84	196	205	160	71	201	158	90		136	52	233	109	113	103	143	109	179	47		---	39	82	73	104	95	39	90	6	2
December 11--	148	24	74	50	67	57	33	86	82	27	20		190	93	93	64	90	44	155	65	91	114		177	18	63	58	86	133	78	83	7	1
December 12--	94	104	53	177	67	111	112	76	78	89	76		161	77	133	95	86	159	179	155	83	134		43	37	85	90	75	74	141	53	3	T
December 13--	180	110	203	83	205	205	182	68	185	164	110		210	43	165	156	211	82	135	150	228	65		52	65	160	57	110	125	100	101	3	2
December 14--	130	155	128	98	162	184	168	149	154	129	146		113	(130)	155	83	184	110	---	162	95	62		153	129	143	46	27	114	52	102	9	3
December 15--	20	68	79	131	112	93	63	103	40	69	47		158	120	221	94	184	72	193	146	183	30		169	151	45	105	44	113	107	48	11	2
December 16--	51	125	55	132	57	55	47	189	86	65	73		201	68	222	88	202	80	---	74	220	20		79	157	103	53	17	133	170	89	7	1
Averages-----	110	98	110	108	124	130	109	106	118	100	80		167	(83)	175	99	153	93	161	123	154	67		112	85	97	69	66	112	98	81	6	1
Departures---	-20	---	-10	+3	-19	-9	-8	+10	---	-5	-32		-8	-8	+55	00	+6	+12	---	-24	+2	---		---	-5	00	-8	---	---	-2	+5	+2	00
December 17--	---	92	119	76	44	106	57	155	148	70	(76)		198	87	214	153	97	116	135	76	219	134		62	145	67	108	96	72	147	38	3	1
December 18--	---	181	51	171	23	55	28	44	153	38	---		166	142	234	93	88	158	179	157	148	42		150	59	111	44	36	115	50	82	4	T
December 19--	---	162	199	213	200	202	176	83	203	167	96		146	120	95	68	211	87	137	200	160	72		89	149	27	42	24	52	90	37	7	1
December 20--	(223)	98	210	129	215	174	124	43	220	234	116		174	131	244	99	180	72	116	124	186	16		75	158	105	64	24	143	97	44	5	T
December 21--	171	(166)	204	171	216	197	149	100	181	150	114		198	134	147	112	208	96	157	100	110	34		167	124	113	134	54	70	62	49	4	1
December 22--	106	15	99	44	83	101	70	49	41	70	13		184	44	140	137	98	80	173	42	131	15		126	46	81	36	26	114	109	61	5	1
December 23--	177	105	155	106	152	138	109	41	146	116	92		197	32	169	144	172	10	151	89	154	53		155	138	33	46	40	111	110	33	5	4
Averages-----	(169)	(117)	148	130	134	139	102	74	156	121	(85)		180	99	178	115	151	88	150	113	158	52		118	117	77	68	43	97	95	49	5	1
Departures---	+20	---	+14	+18	-6	+2	-4	-4	---	+8	-16		+10	+4	+55	+13	-3	-10	---	-7	+4	---		---	+11	-10	-17	---	---	-2	-12	00	00
December 24--	78	66	67	86	70	90	57	37	64	70	43		127	59	218	168	92	68	128	41	207	21		149	26	77	43	28	77	141	35	3	6
December 25--	125	119	200	123	208	153	147	34	209	157	148		172	76	55	23	213	184	131	196	80	118		67	95	33	162	29	53	71	46	4	1
December 26--	40	92	54	208	68	66	44	35	62	57	86		141	173	221	30	135	156	143	192	220	31		221	121	198	137	77	109	161	97	(4)	1
December 27--	270	238	233	265	235	235	201	51	232	194	216		202	150	224	80	233	155	219	207	202	43		202	202	98	112	24	115	64	77	5	T
December 28--	239	232	214	240	228	216	195	56	216	158	198		136	162	193	37	228	159	122	86	128	42		173	115	58	47	14	177	130	47	3	1
December 29--	(106)	177	13	189	25	34	14	36	24	20	65		222	76	174	70	80	92	128	103	158	33		128	129	154	28	25	65	58	73	4	1
December 30--	218	89	214	140	214	233	175	106	118	176	108		153	30	112	24	238	50	108	55	72	106		92	109	102	54	118	77	118	58	7	1
December 31--	100	133	26	189	32	38	20	114	109	30	76		64	117	129	183	65	117	110	155	93	136		105	49	67	133	87	72	46	71	4	2
Averages-----	(147)	143	128	180	135	133	107	59	129	108	118		152	105	166	77	160	123	136	130	145	66		142	106	98	90	50	93	99	63	(4)	2
Departures---	+11	---	+12	+72	-2	+4	+1	-28	---	+8	+17		-23	+24	+48	-26	+29	+29	-17	+24	-1	---		---	+10	-3	---	---	---	-5	+10	-1	00
Accumulated Departures January 1 to December 31, 1950	---	---	-3717	+6426	-582	+2884	+2296	---	---	---	---		---	+105	+6419	---	---	-1330	---	---	---	---		---	---	---	---	---	---	---	---	+10829	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

W.B., Washington, D.C. --- 4/23/51 --- 2400

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, December 1950

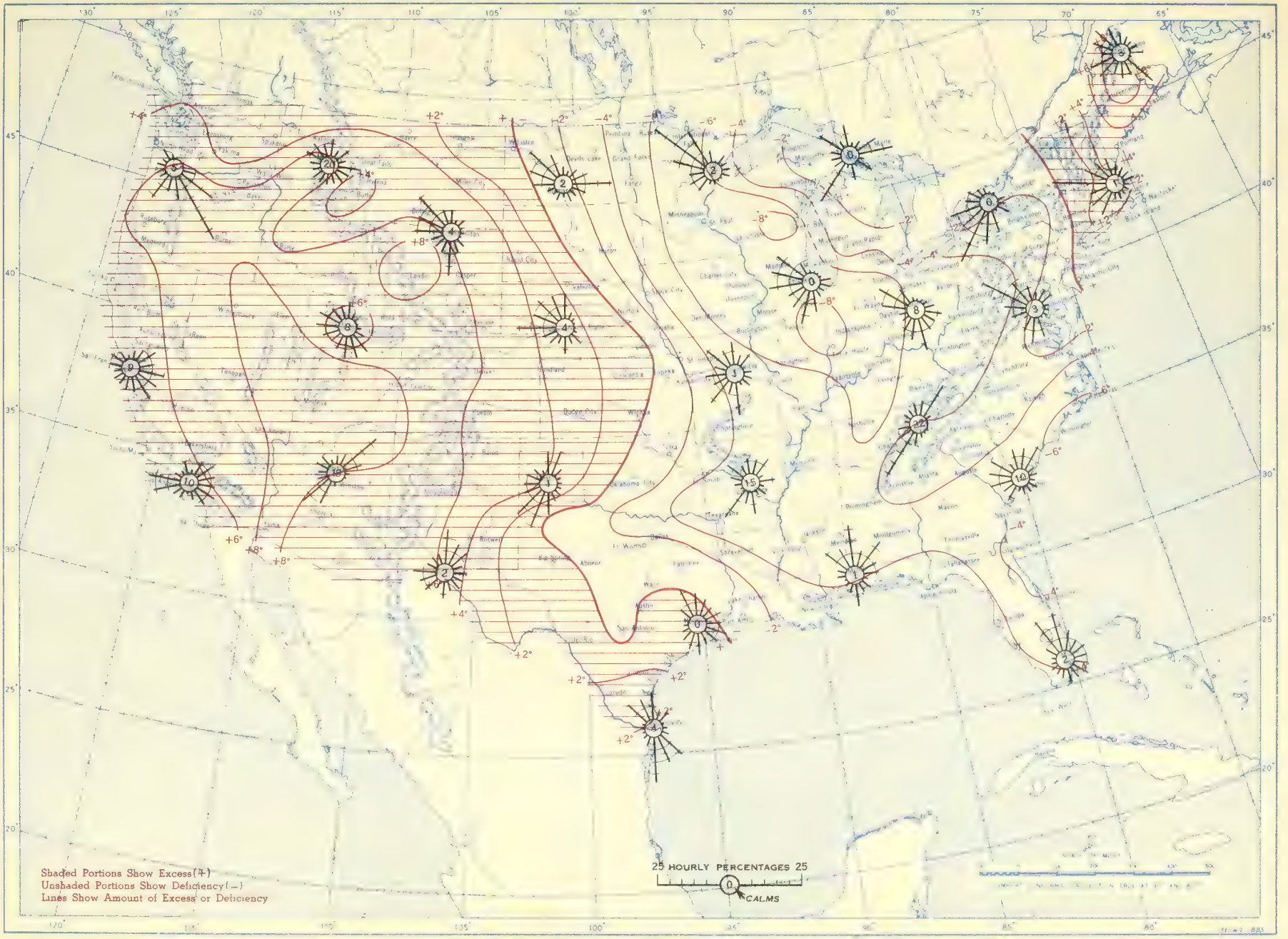
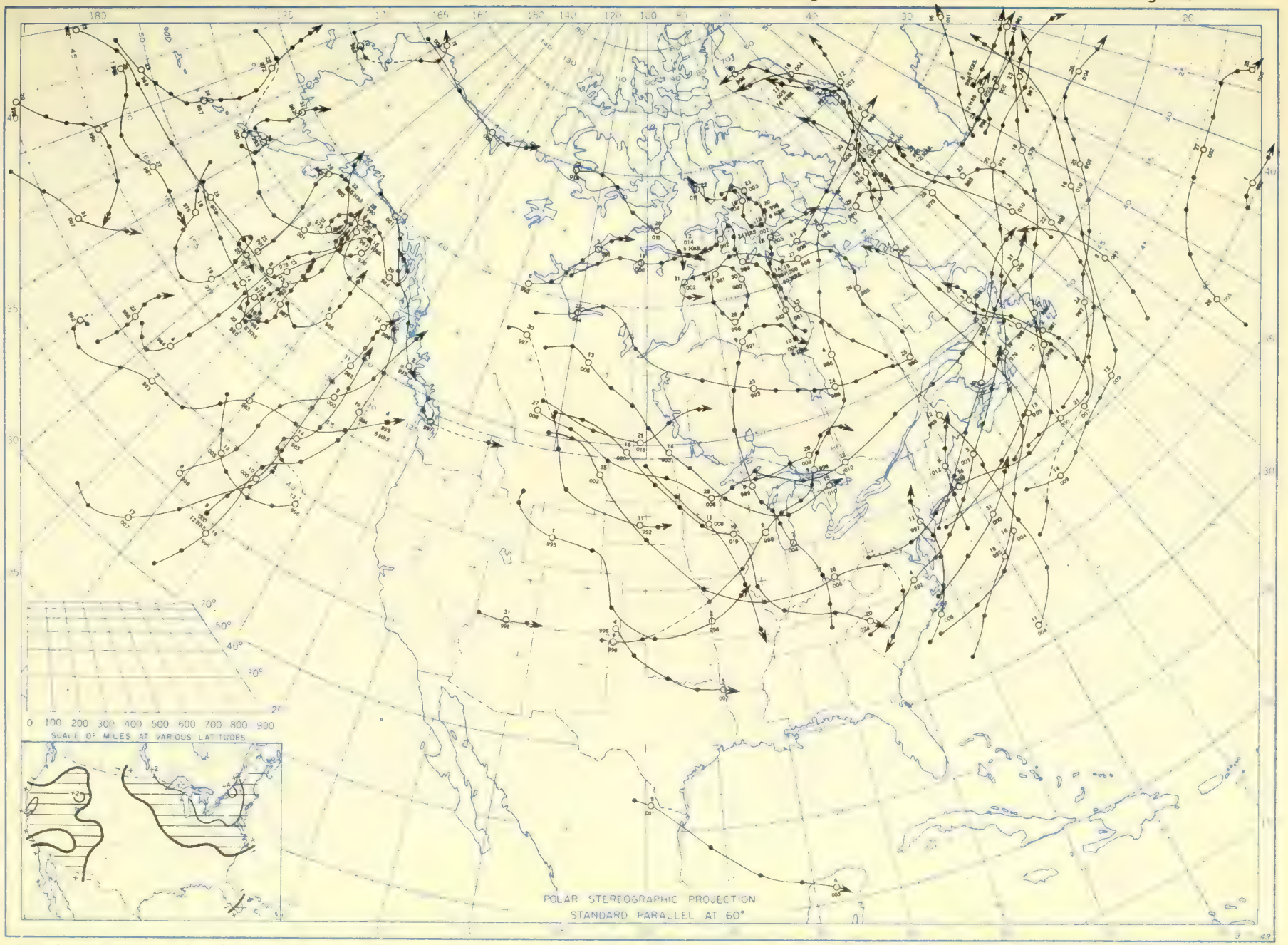


Chart II. Tracks of Centers of Anticyclones, December 1950. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Figure above circle indicates date, and figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Square indicates position of stationary center for period shown. Only those centers which could be identified for 24 hours or more are included.

Chart III. Tracks of Centers of Cyclones, December 1950. (Inset) Change in Mean Pressure from Preceding Month



Circle indicates position of cyclone at 7:30 a. m. (75th meridian time). Figure above circle indicates date, and figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Square indicates position of stationary center for period shown. Only those centers which could be identified for 24 hours or more are included.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, December 1950

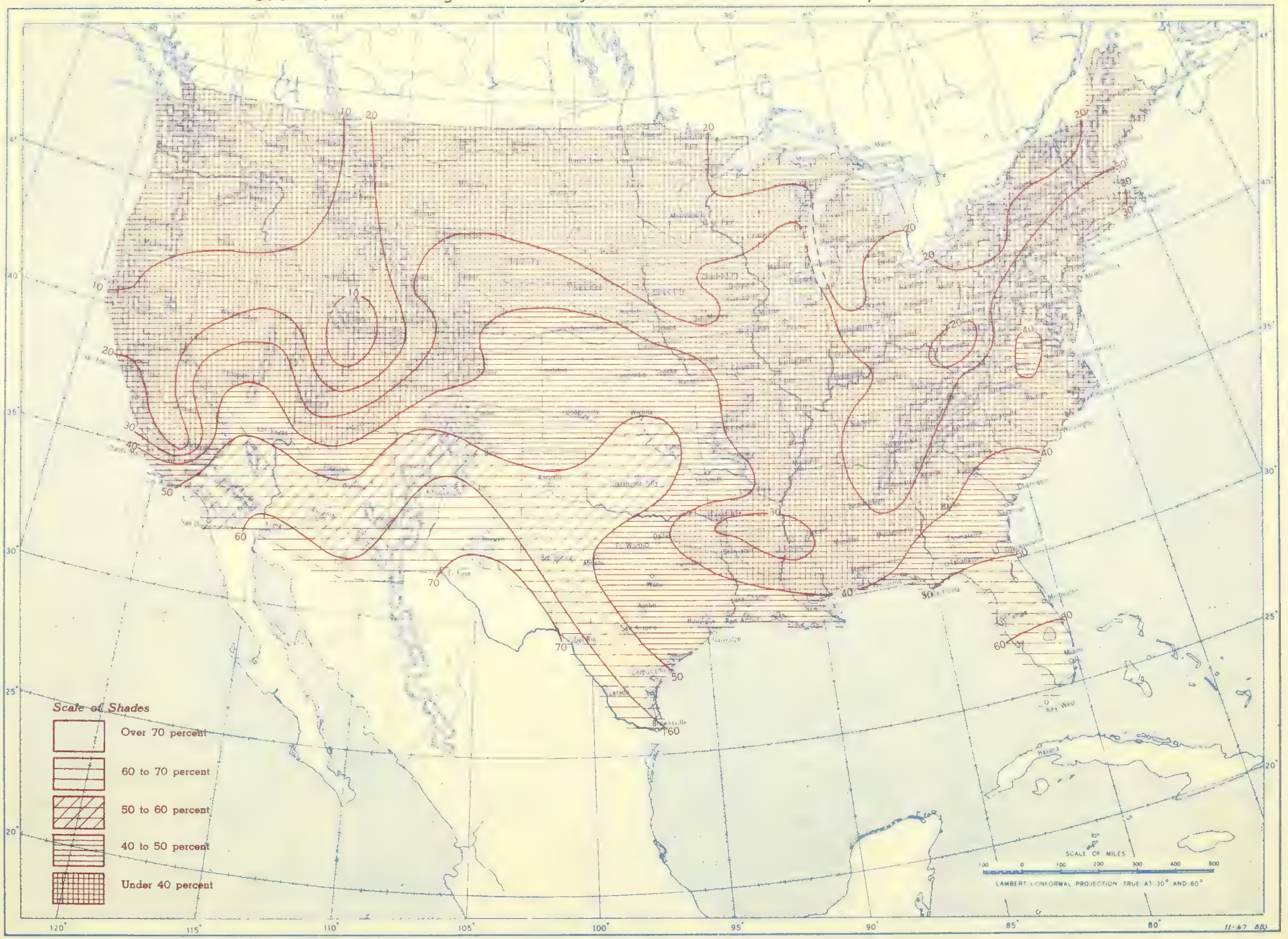


Chart V. Total Precipitation, Inches, December 1950. (Inset) Departure of Precipitation from Normal



Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., December 1950



Chart VII. Total Snowfall, Inches, December 1950. (Inset) Depth of Snow on the Ground at 7:30 a. m., December 26, 1950

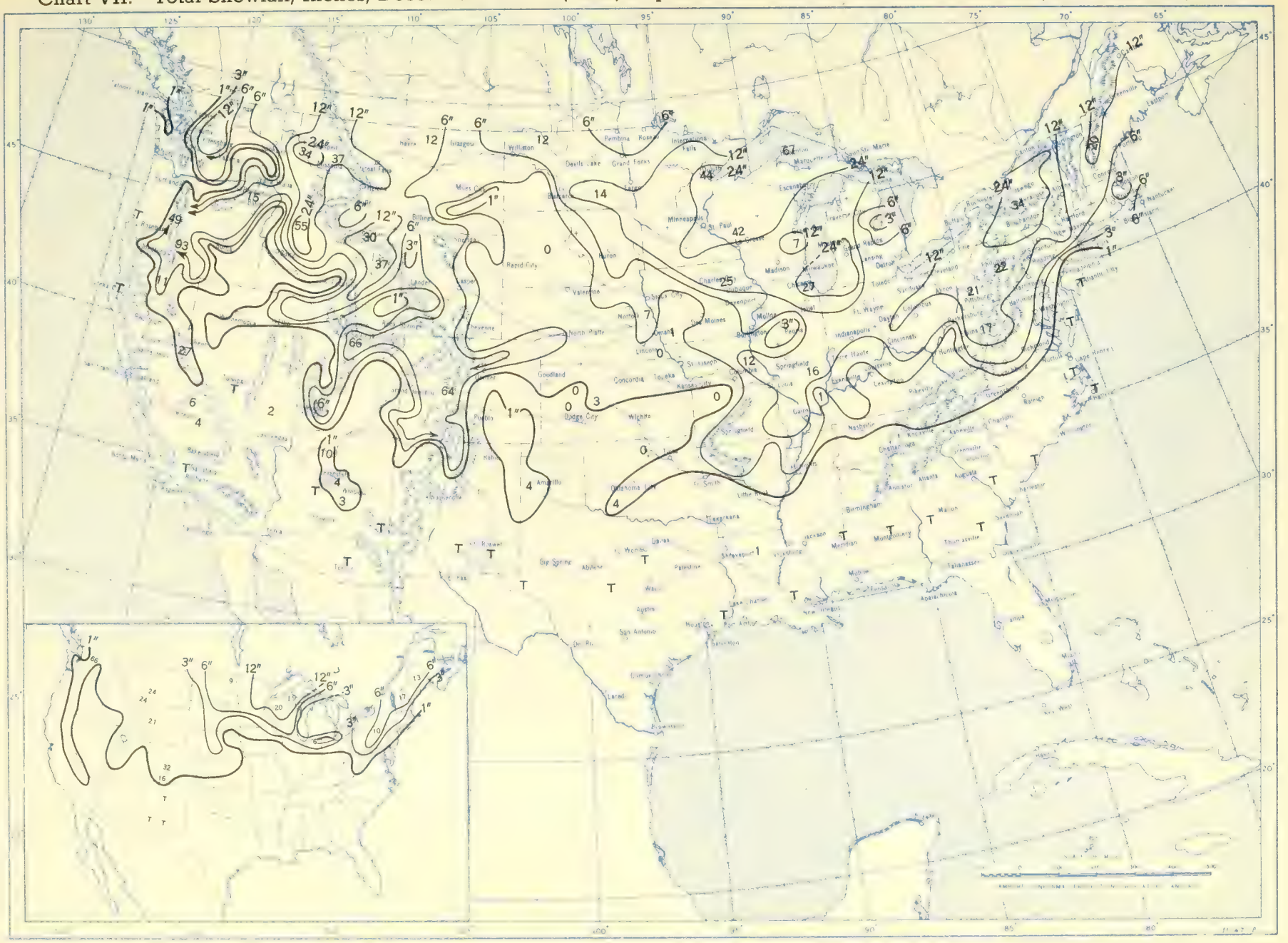
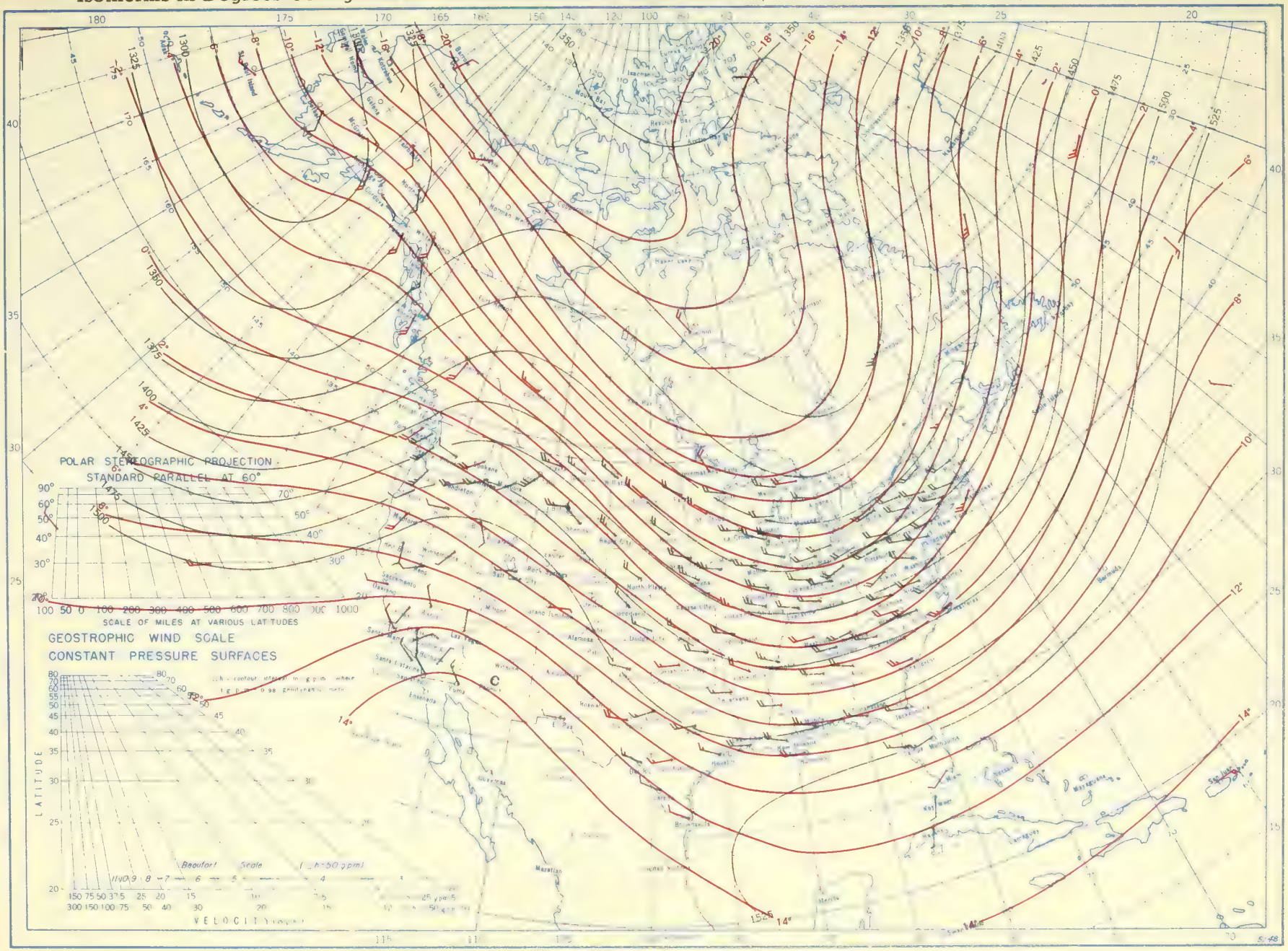
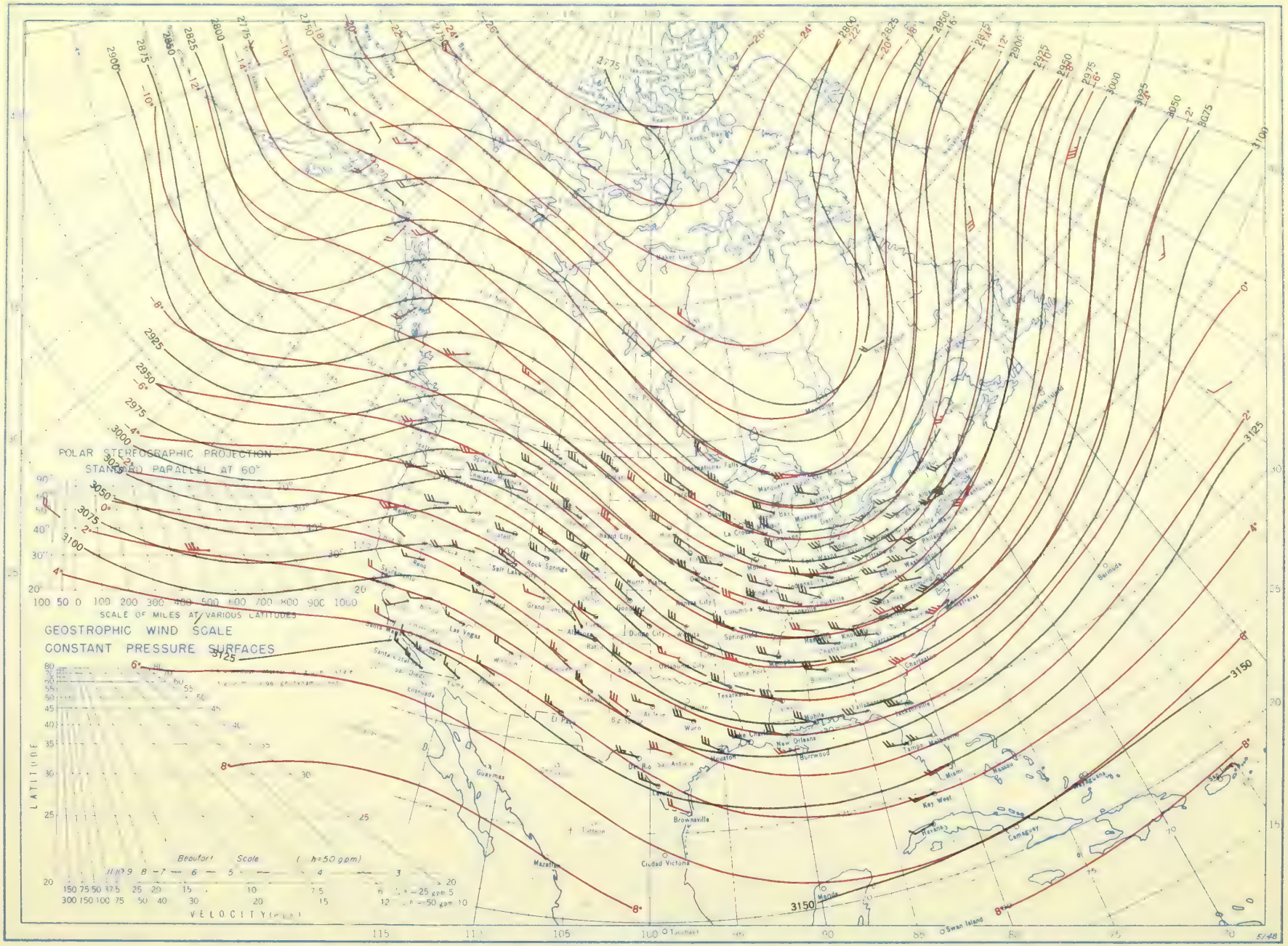


Chart VIII, December 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 850-millibar Pressure Surface, and Resultant Winds at 1,500 Meters (m. s. l.)



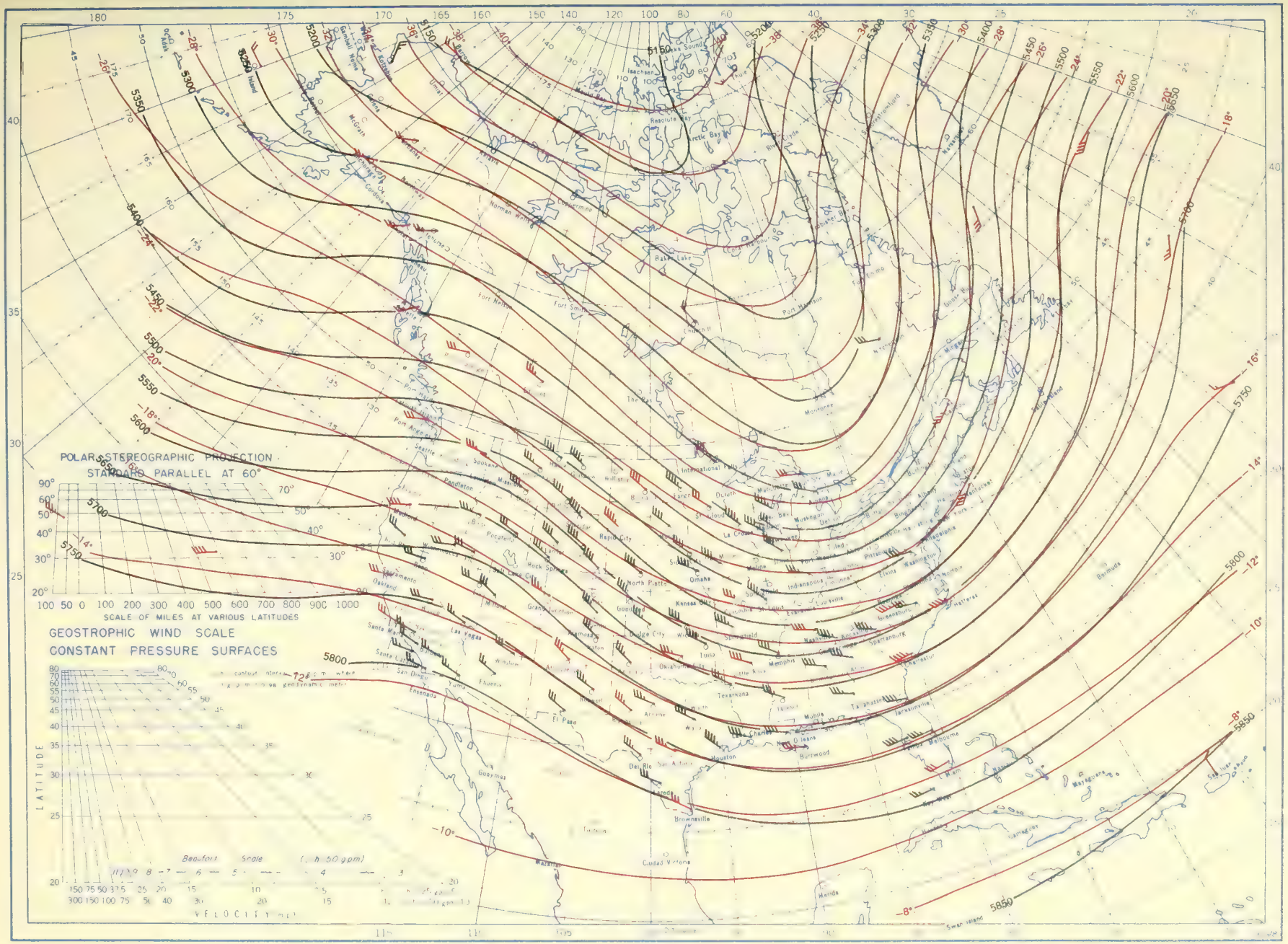
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.: those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart IX, December 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 700-millibar Pressure Surface, and Resultant Winds at 3,000 Meters (m. s. l.)



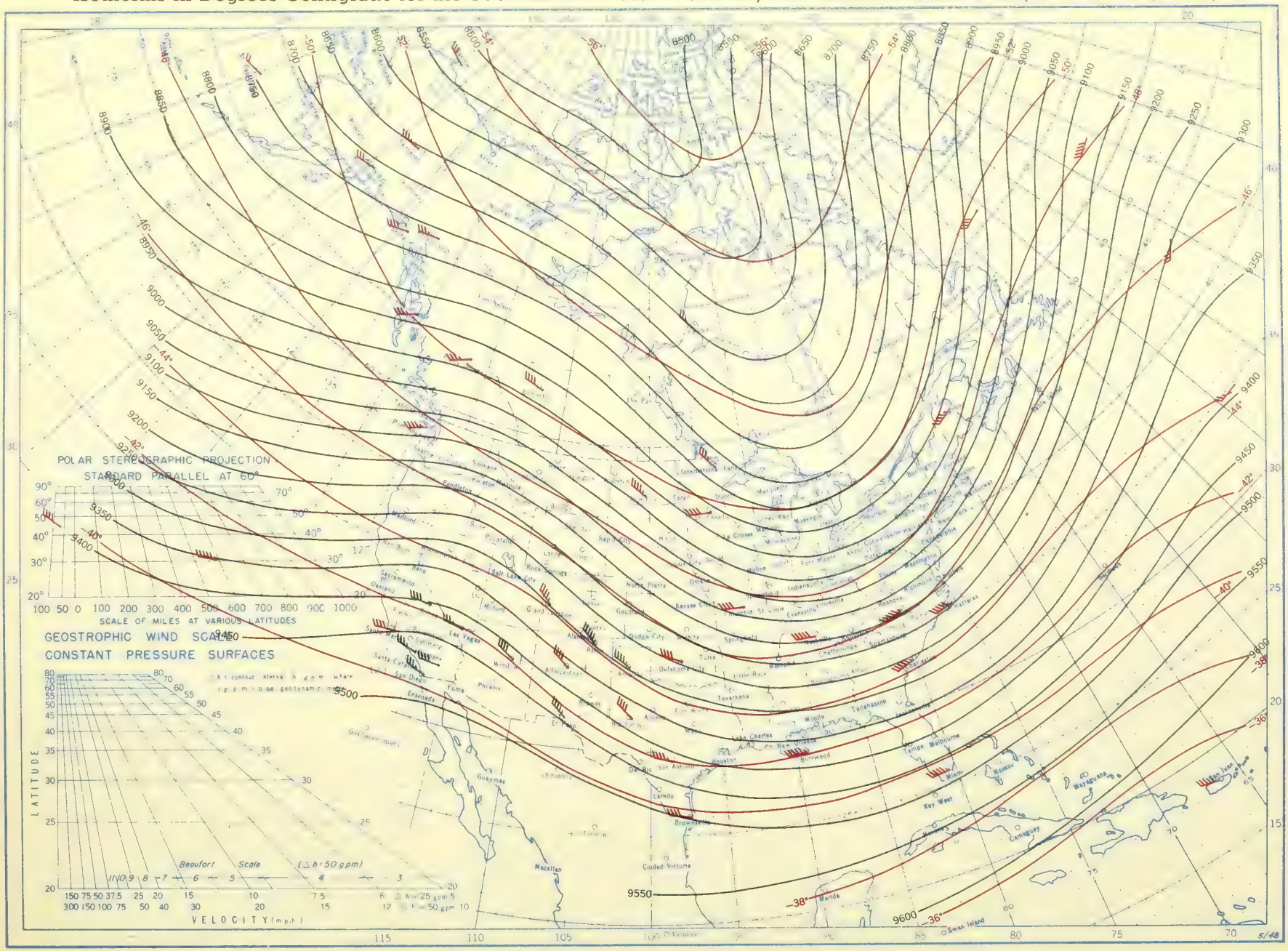
Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, December 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.;

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U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

ANNUAL 1950

Volume 1 No. 13

WASHINGTON: 1951

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S U B S C R I P T I O N P R I C E

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U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 1 No. 13 YEAR 1950

GENERAL SUMMARY OF WEATHER CONDITIONS

The nationwide temperature average for 1950 was 52.5°, which is 0.7° below the 58-year mean. Since the beginning of nationwide averages in 1893, the warmest year was 1934 with an average of 55.4° and the coldest was 1917 with an average of 51.3°. Annual averages were below normal in central, north-central, and northwestern sections, and above in southwestern, extreme southern, and extreme eastern sections. Plus anomalies exceeded 2° in extreme southern Texas and in much of the Southwest. Minus departures were greatest in north-central areas, ranging up to more than 6°. Annual average temperatures ranged from 78.2° at Cow Creek, Calif. to 27.2° at Mt. Washington, N. H. Annual extremes ranged from 126° at Mecca, Calif. on September 2, to -57° at Chester, Mont. on January 25 and at Wolf Point, Mont. on January 26. In the Northern Border Region west of the Great Lakes 1950 was one of the coldest years on record. Statewide temperature values for 1950 were the lowest of record for North Dakota, the second lowest for Montana and Minnesota, and the third lowest for Washington and Wisconsin. One of the outstanding features of the year's weather was the persistent below-normal temperatures during the spring and summer in the north-central interior.

The annual total precipitation for the country averaged 29.68 inches, or only 0.47 of an inch above the 58-year mean. The highest and lowest U. S. average annual totals were 32.89 inches in 1945 and 24.63 inches in 1910. Distribution was fairly even east of the Rocky Mountains, with only a few small, scattered areas receiving as little as 75 percent of normal and only the lower Ohio Valley as much as 150 percent of normal. West of the Great Plains annual totals were much above normal in the Pacific States from central California northward and considerably above in the northern Rocky Mountain Region, ranging up to more than 150 percent of normal at many stations in the highlands of east-central California, in western Oregon, and along the Northern Border between the Cascades and the Continental Divide. Elsewhere west of the Great Plains totals were less than 75 percent of normal, with less than 50 percent in several large areas and less than 25 in a few scattered areas. The occurrence of below-normal precipitation in the Southwest during the past several years continued. During the past 9 years precipitation has averaged 82 percent of normal in Arizona, 89 in New Mexico, and 93 percent in Nevada. During this period Arizona received as much as the normal amount of precipitation only for the year 1946, and New Mexico received slightly above normal amounts only in 1942, 1944, and 1949.

The greatest percentage of normal precipitation for 1950 was in the Sierra Nevada Region of central California, where the totals were twice the usual annual amounts. The greatest annual total of precipitation was 168.11 inches at Valsetz, Oreg., and the least, 0.21 inch at Bradley, Calif. Upper Columbia Snow Laboratory in Montana reported 54.[illegible] inches, the greatest annual total of precipitation ever recorded in the State. This was the wettest year on record in Kentucky and Tennessee, and the driest in some southwestern areas. Rainfall exceeding 10 inches in 24 hours occurred at numerous stations in the central Great Plains. At York, Nebr., 13.15 inches fell in less than 9 hours on July 8-9, the greatest 24-hour amount ever recorded in the State. At Galveston, Tex., 13.90 inches fell in a 24-hour period on June 2-3, and an unofficial measurement of 17.30 inches was reported from Galveston Island. A 1-day total of 11.91 inches was measured at Highland, Calif., on November 18.

The winter of 1949-50 was colder than usual in the Northern Border Region west of the Great Lakes and in the Pacific States, due mainly to an extremely cold January in that area, but was unusually warm in the south-central and eastern portions of the country. Winter precipitation was much above normal in the Ohio and central Mississippi Valleys, but much below in the Southwest and Southeast.

During the spring months temperatures averaged considerably above normal in the Southwest, but generally below elsewhere, being unusually cold in north-central areas. Precipitation during the spring was unusually deficient in the Southwest, but considerably above normal in the basin of the Red River of the North and the extreme upper Mississippi Valley.

The summer of 1950 was unseasonably cool, temperatures averaging above normal only in the Pacific States and along the Gulf and Atlantic Coasts. Precipitation was generally normal or above, especially in the central agricultural regions.

The fall of 1950 was unusually warm, and was very dry except in Florida, the Ohio Valley, and the Northwest.

SYNOPSIS BY MONTHS

JANUARY.—This January was the warmest of record east of the Mississippi River. However, the weather was severely cold and snowfall exceptionally heavy in the Northern Border States west of the Great Lakes. Monthly totals of precipitation were unusually large between the Great Plains and the Appalachians. Statewide temperature averages for 10 eastern States were the highest on record. All-time January maximum temperatures were recorded in four States, previous records were equaled in two others; and at many stations, some as far west as Missouri, new January maxima were established. The contrast in monthly temperature departures between the warm East and cold West was very great.

FEBRUARY.—The first week was severely cold in the Northwest, with some record all-time low temperatures in eastern Washington and Oregon, but was unusually warm east of the Mississippi River. Frost penetration was 7 feet deep in northern Montana. The second week was relatively warm nearly everywhere, with heavy rains along the north Pacific Coast, and

in the Ohio and Mississippi Valleys. A severe freeze occurred in the Southwest at the beginning of the month, and thunderstorms and tornadoes occurred in the south-central areas on the 11th and 12th. There was flooding in parts of the Ohio Drainage Basin all month.

Widespread glaze in the Midwest and Northeast during the second and third weeks resulted in many deaths, and injuries and damage amounted to millions of dollars. During the last half of the month temperatures were above normal in the West and below in the East. A freeze reached the central Gulf areas on the 17th and southern Florida on the 18th. High temperatures in the far West during the third week removed snow from most agricultural valleys. The last week was the coldest of the winter east of the Mississippi, and considerable glaze occurred from Missouri to Ohio. The month was very dry in sections of the Southwest and Southeast.

MARCH.—Temperatures averaged unusually low, especially in the north-central interior and extreme northeastern areas. Precipitation was below normal in southern areas and above in the North. In the East the month began with minimum temperatures at record low levels in the northern portion and below freezing as far south as central Florida; heavy snowfall occurred in some northern areas that measured 24 inches on the ground at Syracuse, N. Y. On the 7th and 8th a deep Low accompanied by rain, snow, sleet, and winds up to 100 m.p.h. caused nearly $5,000,000 damage in the northern Great Plains. In the eastern Dakotas this storm was described by many people as the worst ever known. A severe cold wave following the storm brought a freeze to most southern areas. On the 10th and 11th another cold wave was preceded by snow and glaze in north-central sections and on the 11th and 12th by heavy rains in south-central areas.

The last half of the month was stormy, with heavy rains falling east of the Rocky Mountains. On the 26th and 27th another severe storm accompanied by heavy snow and winds up to 80 m.p.h. crossed the Great Plains, establishing new low-pressure records at a number of stations. This storm was preceded by near record high temperatures from the Lake Region to the Gulf, and its trailing cold front was accompanied by many severe local storms as it swept across the Southeast. The cold air mass that followed the storm brought another freeze to south-central and southeastern areas from about the 28th to 30th. Agricultural activities were delayed by the cold, wet weather in most areas east of the Rocky Mountains.

APRIL.—The nationwide temperature average for the month was the fifth lowest on record. Temperatures averaged below normal everywhere, except in the Southwest. It was one of the coldest Aprils of record in the East. Precipitation was above normal in much of the northeastern quarter of the country, but generally below elsewhere, especially in the Southwest. Heavy snows in northern areas west of the Great Lakes brightened irrigation water prospects. Severe glaze and the heaviest late-season snowfall on record occurred in north-central areas at the close of the month. Temperatures were below zero in the Lake Region on the 6th and below-freezing in central Florida on the 7th. Precipitation was rather widespread during the first decade. Severe glaze from Iowa and Minnesota through the Lake Region from the 8th to the 10th caused damage in the millions of dollars. A storm crossed the central interior from the 9th to the 11th, causing duststorms in the Southwest and snow and glaze in the extreme north. A cold wave in north-central areas from the 12th to the 13th brought a freeze to northern Florida on the 15th and 16th. Another intense storm moved across the Great Plains from the 23d to the 27th, with duststorms in the western Great Plains, general precipitation in the East, and record late-season snowfall in some north-central areas. Crops were damaged by a freeze west of the Continental Divide on the 24th and 25th. Crop activities were still behind schedule east of the Rockies at end of the month, due to cold, wet weather. The southwestern drought caused further deterioration of small grains.

MAY.—Monthly temperature averages were generally near normal, being a little above in most areas. Precipitation was well spaced through the month and the nationwide average total was normal, but geographic distribution was very irregular with above-normal amounts concentrated in the southeastern quarter and northern Great Plains. The first few days were unseasonably cold in far West, with susceptible crops suffering damage in several southwestern areas. It was very cold in the Northeast on the 8th and 9th. On the 4th and 5th a severe storm crossed the Great Plains; heavy snows fell in extreme northern portions and wind gusts up to 90 m.p.h. occurred over a large area. This storm was described as the worst in the history of Wisconsin and one of the worst in Iowa; damage amounted to several millions. On the 8th and 9th record rainfall and flash floods in Nebraska caused 23 deaths and millions of dollars damage. Floods caused heavy damage along the Red River of the North Valley and in northeastern Minnesota. The weather was more favorable for agriculture than during April, but the continued drought in the Southwest caused further small grain deterioration.

JUNE.—The nationwide temperature average was slightly below normal, but departures were as much as 4° below normal in the northern Rockies and as much as 3° above in the extreme Southeast. The nationwide average total precipitation was slightly below normal, but excesses occurred in Midwestern and west Gulf coastal areas and deficiencies in the northern Great Plains and southern Florida. There were several periods of unseasonably low temperatures in the far West and North during the first half. Late-season snows fell in the far western valleys, and unseasonably heavy snows in the western mountains. Below-freezing temperatures were recorded on the first and about the middle of the month in northern areas east of the Rockies. The last week was very warm in the southern portion of the country, with new June records at a number of stations. Severe storms for the month were more frequent than usual, but total damage less. Flash floods in West Virginia and Ohio caused heavy damage. The weather was too dry in the Southwest for unirrigated crops, and too much rain in the South favored cotton weevil and interfered with corn and cotton cultivation. The weather was generally favorable for agriculture elsewhere.

JULY.—This was the coolest July since 1915. Monthly temperature averages were slightly above normal west of the Continental Divide and in the Northeast but from 4° to 6° below normal in the central Great Plains and northern Rockies. The average temperature for Kansas was the lowest on record. The nationwide average precipitation was

the greatest on record for July. Moisture excesses were the greatest in the central Great Plains, but rainfall was deficient in several areas of the western half of the country. Cool, showery weather and lack of sunshine slowed the development and maturity of major crops. At the end of the month corn was 2 weeks late and weevil infestation of cotton was heavy in much of the Main Belt.

AUGUST.--This was the coolest August on record. Temperature averages were above normal only in far western and extreme southern areas. Plus anomalies were as much as 4° at a few western stations and minus anomalies as much as 4° in central areas. Precipitation was nearly normal for the country as a whole, with pronounced deficiencies in the Southwest and great excesses in south-central areas. During an early-season freeze in extreme north-central areas on the 11th and 12th, and another of greater severity from the 18th to 21st in north-central areas, many stations recorded their lowest August temperatures on record. A hurricane caused considerable damage in central Gulf areas on the 5th. Although moisture was ample, cold weather kept the development of many crops in the north-central interior about 2 weeks behind normal. Heavy rains relieved dry conditions along the New England Coast on August 19 and 20. The need for rain increased in the far West. At the end of the month corn was 3 weeks late in many north-central areas, and it was evident that cotton production was being much diminished by weevil infestation. Soil condition in the central Great Plains was excellent for the fall wheat crop. The weather favored most miscellaneous crops, except pastures in the far West. Some eastern sections needed rain.

SEPTEMBER.—The month was cool, temperatures averaged above normal in the West and some southern areas. A late summer heat wave that began in the far West at mid-August reached its peak during the first week in September, setting many new high temperature records for September. From the 23d to the 25th a cold wave in the eastern two-thirds of the nation set early-season low temperature records in north-central areas and the Southeast. Precipitation was slightly above normal. On the afternoon of the 24th smoke from forest fires in Canada reduced sunshine in parts of the northeastern United States to the extent that artificial lighting was necessary. The weather generally favored most crops except cotton.

OCTOBER.--Warm, dry conditions prevailed over most of the country. This was the second warmest October on record, and the driest of record in some sections of the Southwest. Washington was the only State with an average temperature below normal. The warm, dry weather favored maturity of late crops. Most rainfall in the Northwest was produced by a severe storm from the 26th to the 29th. Monthly rainfall records for 24-hour amounts and monthly totals were set in northern California and western Oregon. Most rainfall in eastern Florida occurred during a hurricane on the 17th and 18th. Snowfall was generally below normal, except in the northwestern mountains where heavy snows fell from the 26th to the 29th. Rainfall was exceptionally deficient in the Southwest. The greatest storm damage was caused by the Florida hurricane on the 17th and 18th.

NOVEMBER.--This was a month of record-breaking extremes. For the country as a whole temperatures averaged much below normal and precipitation near normal. High temperature records were broken in the East at the beginning of the month. Heavy rains and damaging floods in central California and western Nevada were unprecedented. The drought continued in the Southwest. During the last week, one of the most severe November cold waves on record established new November low temperature records in the Midwest and Southeast; record-breaking snows fell in the Ohio Valley, and one of the most damaging storms on record occurred in the Northeast.

DECEMBER.--For the country as a whole December averaged colder and drier than usual. Temperatures averaged above normal by 10° in the far West and Northeast and below by 5° to 8° in central areas. Fog and overcast in parts of the far West set new records. More damaging floods occurred in California. Record low December temperatures were recorded in central and southeastern areas. Record snowfalls occurred in the upper Mississippi Valley and at some northeastern stations. A hailstorm in the St. Louis area on the 2d was one of the worst on record for December.

AVERAGE TEMPERATURE

Table 1 — YEAR 1950

Section	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	60.2	54.4	53.3	59.9	74.4	78.2	78.3	77.8	73.0	66.8	49.4	42.3	64.0
Arizona	41.0	49.0	52.0	61.2	64.2	73.7	77.8	77.0	70.0	67.3	54.0	48.2	61.3
Arkansas	47.2	46.4	49.2	58.2	69.7	76.1	76.8	75.6	70.1	66.5	47.4	38.6	60.2
California	39.5	48.6	51.0	58.8	62.7	68.2	76.6	75.2	68.8	63.1	55.8	50.4	59.9
Colorado	24.6	31.8	34.2	44.6	50.4	61.9	65.0	63.4	56.7	53.2	36.2	31.0	46.1
Florida	68.2	64.3	65.2	66.3	77.1	81.6	80.3	81.3	78.9	75.1	62.2	56.8	71.4
Georgia	59.6	54.4	53.7	60.6	74.3	79.1	78.4	78.2	73.3	67.8	51.1	43.7	64.5
Idaho	18.9	29.0	34.0	42.9	50.0	58.8	66.8	66.3	57.9	50.1	37.1	32.4	45.4
Illinois	33.9	31.3	37.4	47.2	64.5	71.2	72.9	70.4	65.7	60.7	36.5	23.3	51.3
Indiana	37.3	31.8	36.9	46.3	63.5	69.6	72.1	70.5	64.7	59.3	37.0	24.2	51.1
Iowa	18.4	22.4	30.7	42.6	59.8	68.4	69.7	67.7	63.0	57.7	33.1	18.8	46.0
Kansas	30.3	37.9	41.1	51.9	63.9	74.8	73.2	71.9	66.6	62.4	40.9	33.9	54.1
Kentucky	45.4	40.0	43.1	52.3	66.9	72.1	73.4	71.9	67.2	62.4	41.0	32.1	55.7
Louisiana	62.5	58.6	57.9	63.8	75.7	79.5	80.3	80.9	76.5	70.0	55.9	49.3	67.6
Maryland - Delaware	45.3	36.2	39.9	50.1	62.1	70.7	73.7	72.7	64.8	58.2	45.9	33.0	54.4
Michigan	23.9	21.2	25.3	36.0	54.1	63.5	65.8	63.4	58.2	52.4	32.8	21.5	43.2
Minnesota	3.5	12.1	20.5	33.2	51.6	64.4	66.8	63.8	60.8	49.3	24.9	9.0	38.3
Mississippi	59.4	54.5	54.3	61.1	74.6	78.5	78.9	78.4	73.7	68.1	51.4	43.8	64.7
Missouri	35.7	36.1	40.9	51.5	65.8	72.9	72.8	71.2	66.5	63.2	39.9	30.3	53.9
Montana	-.4	25.3	26.3	39.1	48.6	57.8	64.3	63.3	54.5	47.0	28.0	25.9	40.0
Nebraska	18.5	29.8	33.1	44.6	56.9	69.4	70.2	69.6	62.3	56.6	35.8	29.1	48.0
Nevada	28.0	38.4	40.8	49.8	55.3	63.9	72.8	70.6	61.2	55.6	44.8	39.3	51.7
New England	28.7	20.6	27.4	41.6	54.7	64.4	68.5	66.4	56.5	51.1	42.2	28.7	45.9
New Jersey	40.7	31.6	36.8	47.8	58.6	68.5	73.2	71.3	62.9	57.4	46.3	32.0	52.3
New Mexico	37.2	41.8	45.2	54.5	60.4	70.9	71.6	70.5	63.9	61.3	45.7	40.0	55.3
New York	31.5	22.0	26.5	41.1	55.9	64.7	68.5	67.2	57.8	52.4	40.4	25.2	46.1
North Carolina	53.0	46.9	48.1	57.0	68.5	74.5	75.7	74.5	69.5	63.5	47.7	37.9	59.7
North Dakota	-10.5	8.8	19.2	32.6	49.4	62.2	66.1	64.1	57.9	46.9	21.6	10.0	35.7
Ohio	39.2	32.4	36.1	45.5	62.0	68.2	70.8	69.5	63.7	57.5	37.3	25.4	50.6
Oklahoma	39.3	46.1	48.9	59.7	69.1	77.4	76.6	76.4	70.7	67.5	47.5	39.1	59.9
Oregon	33.7	34.3	39.2	45.3	51.9	59.2	66.8	67.1	59.6	50.6	42.0	40.1	48.3
Pennsylvania	38.1	29.5	33.0	44.5	58.8	66.4	69.2	68.9	60.8	54.7	40.5	26.9	49.3
South Carolina	56.2	51.4	51.7	60.2	72.4	78.5	78.1	77.3	72.0	66.1	50.5	41.1	63.0
South Dakota	4.0	20.2	24.4	38.2	52.5	65.9	68.0	67.6	60.2	52.4	30.1	21.1	42.1
Tennessee	50.0	45.1	46.6	55.0	69.7	74.1	75.0	73.1	68.4	63.7	43.3	35.1	58.3
Texas	52.5	54.2	56.7	64.7	73.5	79.2	80.4	80.5	75.2	70.6	55.8	48.7	66.0
Utah	22.6	31.6	38.6	47.9	53.0	62.8	69.3	69.0	60.3	55.2	40.7	34.0	48.8
Virginia	47.9	39.7	42.5	52.6	64.2	71.2	73.5	72.6	66.0	59.6	45.2	33.9	55.7
Washington	15.5	32.2	38.8	45.3	52.5	60.4	66.3	66.9	60.4	47.9	39.1	38.0	46.9
West Virginia	45.2	36.9	38.9	48.7	62.9	68.4	70.3	69.8	63.9	57.8	39.9	29.7	52.7
Wisconsin	13.7	17.2	23.8	36.0	54.3	64.8	66.4	63.4	58.8	52.5	29.0	13.5	41.1
Wyoming	15.9	27.4	28.7	39.3	45.3	57.7	62.5	62.3	54.0	48.9	31.8	28.2	41.8
Alaska	5.0	-7.6	15.5	24.5	38.7	49.8	55.5	54.1	43.8	29.1	10.6	4.3	26.9
Hawaii	69.3	70.6	69.9	70.2	71.5	71.8	73.9	74.9	75.1	74.4	72.1	68.6	71.9
Puerto Rico	71.2	71.6	72.2	73.0	75.2	77.2	78.1	78.5	78.5	77.3	75.5	74.0	75.2

DEPARTURES FROM NORMAL TEMPERATURE

Table 2 — YEAR 1950

Section	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	+13.3	+5.5	-2.6	-3.5	+3.0	0.0	-2.0	-1.9	-2.5	+2.0	-4.8	-5.3	+0.1
Arizona	-.2	+3.8	+1.2	+3.3	-1.6	-1.0	-1.9	-1.1	-2.5	+6.2	+4.0	+5.9	+1.3
Arkansas	+6.0	+2.7	-3.2	-1.4	+.6	-1.0	-3.7	-4.4	-4.0	+3.6	-3.8	-4.2	-1.2
California	-4.7	+1.3	-.7	+2.0	-.4	-1.7	+.7	+.4	-.7	+1.9	+3.8	+4.8	+.6
Colorado	+.7	+1.6	-.3	+.7	-2.0	+.3	-2.2	-2.4	-1.2	+6.6	+2.0	+5.8	+.9
Florida	+9.0	+3.7	0.0	-3.7	+1.5	+1.7	-1.0	-.1	-.5	+3.2	-2.8	-3.2	+.7
Georgia	+11.4	+4.7	-3.3	-3.5	+2.2	+.5	-1.9	-1.6	-2.5	+2.4	-4.2	-4.6	-.1
Idaho	-4.6	+1.0	-1.7	-2.3	-3.2	-1.5	-1.6	-.3	+.6	+2.7	+1.8	+6.1	-.2
Illinois	+6.0	+1.3	-3.5	-5.3	+1.8	-.9	-3.5	-4.2	-2.0	+4.8	-5.7	-7.9	-1.5
Indiana	+8.1	+1.1	-3.9	-5.6	+1.3	-1.6	-3.5	-3.2	-2.6	+4.1	-5.2	-7.2	-1.4
Iowa	-1.3	-.2	-5.0	-6.3	-.6	-1.1	-5.2	-4.9	-1.4	+5.2	-4.3	-5.6	-2.6
Kansas	.0	+3.9	-3.0	-2.6	+.1	+1.0	-6.4	-6.4	-3.4	+4.7	-2.9	+1.0	-1.1
Kentucky	+9.5	+2.7	-3.3	-3.9	+1.5	-1.8	-3.6	-3.9	-3.0	+3.9	-5.4	-5.6	-1.0
Louisiana	+10.9	+4.7	-2.6	-3.3	+1.9	-.5	-1.8	-.9	-1.4	+1.9	-2.4	-2.6	+.6
Maryland-Delaware	+11.8	+2.7	-3.0	-2.2	-.8	-.2	-1.6	-.8	-2.8	+1.7	+.5	-2.3	+.3
Michigan	+3.7	+1.1	-4.3	-6.5	+.2	-.4	-3.2	-3.7	-1.8	+3.6	-3.2	-3.2	-1.4
Minnesota	-6.1	-.4	-6.1	-9.8	-3.5	-.3	-3.2	-3.4	+.9	+3.3	-4.5	-6.3	-4.0
Mississippi	+12.0	+4.9	-2.6	-3.5	+2.7	-.4	-2.2	-2.3	-2.1	+2.5	-3.7	-4.5	+.1
Missouri	+4.8	+2.8	-3.1	-3.9	+1.4	-.4	-4.9	-5.3	-2.8	+5.5	-4.7	-3.6	-.6
Montana	-19.2	+4.1	-4.2	-4.2	-3.8	-2.3	-3.4	-2.4	-1.1	+1.7	-3.9	+3.2	-2.9
Nebraska	+4.9	+3.3	3.5	-4.8	-2.4	+.2	-5.4	-4.0	-2.2	+4.6	-1.5	+2.0	-1.5
Nevada	-2.7	+3.3	-.7	+.6	-1.7	-1.3	-.7	-.9	-1.6	+3.7	+4.2	+6.9	+.7
New England	+6.2	-2.1	-4.9	-2.1	-.4	+.4	-.7	-.8	-3.7	+1.4	+4.0	+2.3	.0
New Jersey	+9.8	+.8	-2.6	-2.0	-2.0	-.7	-.7	-.7	-3.0	+2.5	+2.3	-1.7	+.2
New Mexico	+3.4	+3.6	+.9	+2.2	-.2	+1.2	-1.7	-1.2	-1.4	+6.5	+2.8	+4.6	+1.8
New York	+8.4	-.5	-5.7	-3.2	-.2	-.4	-1.3	-.6	-3.4	+2.2	+2.1	-1.5	-.3
North Carolina	+11.2	+4.0	-1.9	-1.1	+1.6	+.3	-1.2	-1.4	-1.4	+3.3	-2.4	-4.7	+.5
North Dakota	-17.2	-.9	-4.6	-8.9	-4.0	-.6	-2.9	-2.9	+.8	+2.9	-5.8	-4.0	-4.3
Ohio	+10.1	+2.4	-2.9	-4.3	+1.4	-1.5	-2.8	-2.2	-1.9	+3.7	-4.3	-6.2	-.7
Oklahoma	+1.3	+4.9	-1.7	-.8	+.8	.0	-5.7	-5.5	-3.5	+4.4	-2.4	-1.5	-.9
Oregon	-8.0	-1.5	-2.6	-2.6	-2.1	-.6	-.1	+1.5	+.9	+.3	+1.8	+5.8	-.6
Pennsylvania	+9.6	+1.1	-4.7	-4.1	-.8	-1.7	-2.9	-.4	-3.2	+2.0	-.9	-4.3	-.9
South Carolina	+10.0	+3.5	-3.2	-2.2	+1.5	+.7	-1.8	-1.6	-2.6	+1.9	-3.4	-5.6	-.2
South Dakota	-13.1	+.9	-6.9	-7.8	-3.9	-.2	-5.1	-3.5	-1.4	+3.5	-3.0	-.9	-3.4
Tennessee	+10.7	+3.8	-2.9	-3.8	+2.8	-.7	-2.8	-3.6	-3.0	+3.8	-5.2	-5.7	-.6
Texas	+4.3	+2.9	-1.8	-1.4	+.5	-1.0	-2.6	-2.3	-2.1	+2.9	-1.3	+1.4	-.2
Utah	-2.2	+1.5	+.4	+.9	-2.8	-1.7	-2.6	-.9	-.6	+5.8	+3.6	+6.9	+.6
Virginia	+11.2	+2.3	-3.3	-2.0	.0	-.7	-1.8	-1.4	-2.5	+2.0	-1.5	-4.1	-.2
Washington	-15.8	-2.9	-3.0	-3.3	-2.8	-.4	-.4	+.9	+1.5	-2.2	-.8	+4.4	-2.0
West Virginia	+12.3	+3.4	-3.6	-3.2	+1.1	-1.4	-2.8	-2.0	-2.3	+2.9	-3.4	-4.9	-.3
Wisconsin	-.6	+.6	-4.7	-6.9	-.9	.0	-3.7	-1.3	-1.1	+4.7	-4.0	-6.6	-2.3
Wyoming	-3.1	+5.2	-1.1	-1.0	-4.5	-1.8	-3.8	-2.0	-.8	+4.6	+.4	+6.0	-.2
Alaska	+4.5	-12.0	+6.1	+1.5	.0	-.6	+1.6	+3.4	+1.5	+.3	-1.3	+2.4	+.6
Hawaii	+.1	+1.3	+.3	-.5	-.9	-1.1	-1.1	-.6	+.5	.0	-.2	-1.6	-.4
Puerto Rico	-1.5	-1.1	-1.0	-1.4	-1.1	-.3	-.4	-.2	-.1	-.4	-.6	-.4	-.7

DEPARTURES FROM NORMAL ANNUAL TEMPERATURE

Table 3

(For past years)

Section	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Alabama	+0.9	+1.0	+2.0	+0.7	+1.0	+1.1	+0.5	+1.8	+1.2	-1.5	+0.8	-0.3	+0.5	+1.0	+1.2	+1.4	-0.2	+0.7	+1.2	+0.1
Arizona	-.2	-.9	-.4	+2.4	-.5	+.9	-.4	-.3	+.1	+1.1	-1.5	-.6	+.9	-1.4	-.5	+.3	+.3	-.4	-.9	+1.3
Arkansas	+1.1	+.6	+1.8	+1.4	.0	+.6	-.3	+2.2	+1.3	-2.1	+.5	-.4	+.2	+.3	-.6	+1.2	-.6	-1.0	-.1	-1.2
California	+.4	-1.1	-1.4	+1.5	-1.2	+.6	-.8	-.7	+.2	+.7	-.4	-.6	+.4	-1.2	-.5	-1.0	-.1	-1.6	-1.3	+.6
Colorado	+1.0	-.2	+1.6	+4.3	+1.4	+1.7	+.7	+1.4	+1.5	+1.3	+.6	-.2	+1.3	-.3	-.1	+1.1	+.2	-.6	+.2	+.9
Florida	.0	+1.1	+1.2	+.1	.0	+.1	-.1	+.3	+.7	-1.7	.0	-.3	-.3	+.4	+1.0	+1.5	+.5	+1.8	+1.7	+.7
Georgia	+1.0	+1.2	+1.7	+.1	+.4	+.5	.0	+1.1	+1.0	-1.7	+.5	-.4	-.1	+.1	+.6	+1.0	-.8	+.6	+1.2	-.1
Idaho	+.3	-1.5	-.5	+4.3	-.6	+.2	-.8	+.9	+1.4	+2.3	+1.0	-1.0	-.1	-.8	-.3	.0	+.6	-1.2	-.8	-.2
Illinois	+3.5	+.7	+2.3	+1.8	-.1	+.5	-.8	+2.7	+1.9	-.8	+2.0	+.3	-.4	+.9	-.7	+2.3	-.2	+.1	+1.2	-1.5
Indiana	+2.9	+.7	+2.1	+1.2	-.1	+.3	-.7	+2.3	+1.7	-1.1	+1.7	+.3	-.4	+1.1	-.5	+2.1	-.7	+.2	+1.4	-1.4
Iowa	+5.0	.0	+2.6	+3.3	+.4	+.4	-.7	+3.0	+2.9	-.3	+2.9	+.7	-.3	+1.1	-.5	+2.5	+.7	+.4	+.6	-2.6
Kansas	+2.4	-.3	+2.8	+3.5	+.9	+1.3	-.4	+2.9	+2.8	-.4	+1.2	.0	+.4	+.1	-.4	+2.8	+.2	-.4	-.4	-1.1
Kentucky	+2.3	+1.0	+1.7	+.9	+.1	+.7	-.4	+1.9	+1.2	-1.9	+.9	-.1	-.1	+.7	.0	+1.5	-1.0	+.1	+1.2	-1.0
Louisiana	+.2	+.5	+2.2	+.8	+.8	.0	-.1	+1.0	+1.0	-1.8	+.2	-.8	-.2	+.4	+.4	+.8	-.6	+.1	+.7	+.6
Maryland - Delaware	+1.9	+1.1	+.9	-.3	-.5	-.2	+.1	+1.3	+1.3	-1.9	+.9	+.7	+.3	+.3	+.5	+1.7	+.1	+.4	+2.7	+.3
Michigan	+3.8	+.9	+1.2	+.2	-.5	-.7	+.1	+1.8	+.9	-1.0	+1.8	+.4	-1.4	+1.0	-.4	+1.7	+.2	+.4	+2.1	-1.4
Minnesota	+5.2	-.4	+.6	+1.4	- .5	-2.0	-1.3	+1.8	+1.9	-.1	+2.5	+.9	-.9	+1.5	-1.0	+.7	-.1	+.2	+.5	-4.0
Mississippi	+.7	+.5	+2.1	+.9	+.5	+.3	+.1	+1.6	+.9	-2.3	+.5	-.5	+.3	+.6	+.4	+.9	-.8	-.1	+1.1	+.1
Missouri	+2.8	+.4	+2.1	+2.2	-.2	+1.1	-.7	+3.2	+2.2	-1.2	+2.0	+.3	-.1	+.7	-.5	+2.6	+.2	.0	+.5	-.6
Montana	+2.5	-.4	+1.0	+3.9	-.5	-.3	-1.1	+1.2	+2.3	+1.7	+1.8	-.1	-.4	+.2	-.2	+.8	+.3	-.6	-1.0	-2.9
Nebraska	+3.4	-.3	+2.6	+3.9	+.7	+.4	-.4	+2.8	+3.1	+.6	+1.7	+.3	+1.0	-.2	-.3	+2.4	+.3	+.3	-.2	-1.5
Nevada	+1.8	+.1	+.6	+4.6	+1.0	+2.4	+.8	+.9	+1.9	+2.7	+.6	+1.0	+2.0	-1.0	+.5	+1.3	+1.5	-.6	-.8	+.7
New England	+2.0	+1.2	+.4	-.7	-.5	-.1	+1.5	+1.3	-.4	-1.8	+.5	+.5	-1.1	+.1	+.3	+.9	+.4	-.3	+2.6	.0
New Jersey	+2.4	+1.4	+.9	-.4	-.4	+.3	+1.0	+1.3	+1.0	-1.9	+1.0	+.6	.0	+.5	+.6	+1.9	+.5	+.3	+3.1	+.2
New Mexico	-.5	-1.0	+.3	+2.4	.0	.0	-.2	-.1	.0	+.2	-.7	-.1	+1.0	-.9	+.1	+.9	.0	+.4	-.5	+1.8
New York	+2.5	+1.3	+1.3	-.4	-.6	+.2	+1.1	+1.6	+.5	-1.8	+1.2	+.8	-.8	+.4	+.3	+1.6	+.4	+.2	+2.6	-.3
North Carolina	+1.0	+1.2	+1.8	+.3	+.1	+.2	+.1	+1.1	+1.2	-1.5	+.6	+.1	+.1	.0	+.7	+.5	-.6	+.8	+2.2	+.5
North Dakota	+5.3	+.4	+1.5	+3.8	-.2	-.8	-.5	+2.3	+2.3	+1.4	+2.6	+1.3	+.2	+1.4	-.6	+1.2	+.5	+.4	+.2	-4.3
Ohio	+3.0	+1.4	+2.0	+1.0	+.1	+.4	-.1	+2.4	+1.9	-1.2	+1.8	+.7	-.3	+.9	-.2	+1.9	-.2	+.5	+2.7	-.7
Oklahoma	+1.6	+.1	+2.5	+2.5	+.3	+1.3	-.3	+2.3	+2.2	-1.1	+.5	-.3	+.5	+.4	-.6	+2.0	-.1	-.9	-.9	-.9
Oregon	+1.1	-.2	-.8	+3.1	-.4	+.5	-.3	+.5	+1.1	+1.8	+1.4	+.2	-.2	-.2	-.3	-1.0	+.2	-1.7	-1.0	-.6
Pennsylvania	+2.6	+1.4	+1.5	+.4	.0	+.2	+.5	+1.6	+1.5	-1.6	+1.1	+.3	-.7	-.2	-.5	+.9	-.6	-.3	+2.0	-.9
South Carolina	+.8	+1.5	+1.8	+.2	+.2	+.2	-.2	+1.0	+1.2	-1.6	+.2	+.2	-.2	-.1	+.9	+1.0	-.7	.0	+1.1	-.2
South Dakota	+4.5	-.3	+2.5	+4.1	+.9	-.4	-.9	+2.4	+3.0	+.6	+2.4	+.6	+.4	-.1	-.6	+1.8	+.2	+.2	-.1	-3.4
Tennessee	+2.1	+1.5	+2.2	+1.1	+.8	+.9	+.2	+2.0	+1.4	-1.6	+1.4	+.2	+.3	+.8	+.3	+1.7	-.5	+.1	+1.1	-.6
Texas	+.1	-.6	+2.1	+1.8	+.3	-.7	-.4	+1.1	+.8	-1.5	-.5	-.9	-.3	-.2	+.1	+.7	-.8	-.3	-1.3	-.2
Utah	+.2	-1.5	-.2	+4.2	+.7	+1.1	-.4	+.6	+.9	+2.2	-.2	-.7	+1.5	-1.3	-.4	+.7	+.3	-.8	-1.1	+.6
Virginia	+1.9	+1.6	+1.7	+.3	-.5	+.1	-.2	+1.1	+1.3	-1.6	+.9	+.5	+.3	+.1	+.5	+1.1	-.6	+.1	+1.7	-.2
Washington	-.4	-1.3	-1.6	+2.3	-.6	.0	-.7	+.3	+.9	+2.0	+2.1	+.6	-.3	+.2	-.2	-.5	+.4	-2.5	-1.4	-2.0
West Virginia	+1.7	+1.0	+1.4	+.5	.0	+.3	-.1	+1.5	+1.4	-1.6	+.4	.0	-.5	.0	.0	+1.4	-.4	+.1	+2.2	-.3
Wisconsin	+4.7	-.1	+.9	+1.2	-.5	-1.3	-.7	+1.8	+1.7	-.8	+2.4	+.5	-.9	+1.7	-.6	+1.9	+.4	+.8	+1.8	-2.3
Wyoming	+1.3	-1.4	+1.3	+3.9	+.3	+.5	-.5	+1.1	+1.6	+1.7	+1.1	-.2	+1.6	-.5	-.2	+2.1	+.8	+.4	+.7	-.2

AVERAGE PRECIPITATION

Table 4

YEAR 1950

Section	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	4.58	4.19	6.69	3.63	4.04	3.62	8.99	5.18	4.13	1.78	1.67	4.06	52.56
Arizona	.61	1.00	.49	.04	.10	.34	3.02	.87	.83	.03	.14	.03	7.50
Arkansas	9.63	6.22	4.20	3.29	8.08	3.52	7.10	6.87	5.35	1.91	2.24	1.25	59.66
California	5.67	2.77	2.72	1.35	.64	.27	.14	.05	.38	3.23	4.59	4.16	25.97
Colorado	1.09	.67	.64	1.22	1.16	.93	2.12	1.10	1.65	.25	.79	.63	12.25
Florida	.39	1.03	4.03	3.14	3.08	3.74	7.91	6.32	8.02	7.06	.90	2.86	48.48
Georgia	1.83	2.26	5.90	2.18	4.03	3.35	6.95	4.01	4.98	3.94	1.00	3.99	44.42
Idaho	3.25	1.67	2.83	.96	.90	1.72	.64	.52	1.16	2.13	1.95	2.11	19.84
Illinois	7.10	3.87	2.37	5.17	2.57	5.63	3.98	3.63	3.25	1.30	2.82	1.45	43.14
Indiana	10.23	5.37	3.32	5.08	3.07	5.76	3.78	3.47	5.25	1.46	5.19	2.30	54.28
Iowa	1.51	1.56	1.03	2.76	4.89	5.70	4.65	2.39	2.03	1.26	.60	.75	29.13
Kansas	.27	.73	.60	1.10	3.82	2.86	8.71	5.88	1.35	1.17	.20	.06	26.75
Kentucky	12.82	5.30	3.74	2.97	6.34	6.60	6.66	4.78	5.01	1.77	5.20	2.38	63.57
Louisiana	5.87	6.88	5.50	5.40	6.24	7.20	6.33	3.63	3.26	2.33	2.06	4.62	59.32
Maryland - Delaware	3.37	3.04	4.29	1.75	4.68	3.20	4.45	3.46	6.76	2.58	3.38	3.26	44.22
Michigan	3.70	2.44	2.50	3.97	1.88	3.50	4.04	2.61	3.25	1.26	3.04	2.32	34.51
Minnesota	1.50	.35	2.02	2.56	4.53	2.74	3.49	1.82	2.59	2.01	1.09	1.20	25.90
Mississippi	8.25	6.96	6.81	3.33	4.70	3.97	7.49	5.24	4.04	1.76	2.83	4.51	59.83
Missouri	5.52	2.65	2.21	3.67	5.53	4.14	4.47	6.72	2.01	1.12	1.69	.00	39.79
Montana	1.16	.51	1.37	1.18	1.10	3.21	1.70	1.30	1.69	.92	.95	.77	15.86
Nebraska	.44	.82	.97	1.20	4.24	2.07	5.31	3.69	2.22	1.11	.48	.14	22.69
Nevada	1.21	.59	.84	.51	.46	.31	.81	.10	.76	.65	1.33	.97	8.54
New England	4.00	3.07	3.38	2.96	2.28	3.50	2.56	4.39	2.02	2.21	6.53	4.22	41.12
New Jersey	2.46	3.93	4.35	2.18	3.68	2.75	5.19	4.97	3.34	1.88	5.49	4.00	44.22
New Mexico	.28	.29	.15	.25	.27	1.24	4.35	1.08	2.10	.46	.06	.04	10.57
New York	3.90	3.55	3.48	2.12	2.52	2.93	3.78	4.67	3.02	2.42	4.91	3.42	40.72
North Carolina	2.73	1.95	4.01	1.53	5.42	5.13	8.61	3.47	4.35	3.56	1.52	3.46	45.74
North Dakota	1.04	.32	1.38	1.38	3.44	3.14	1.92	1.49	2.42	.63	.49	.57	18.22
Ohio	8.38	4.23	2.75	4.02	2.77	4.37	4.30	2.88	4.25	2.35	4.94	2.34	47.58
Oklahoma	1.93	2.02	.48	1.76	7.24	3.13	9.15	4.84	3.29	.59	.37	.10	34.90
Oregon	6.99	3.43	4.38	1.73	.92	2.13	.30	.44	.78	6.61	4.88	4.95	37.54
Pennsylvania	4.14	3.81	4.58	2.57	3.99	3.64	4.69	3.62	3.76	2.79	6.34	3.59	47.52
South Carolina	2.18	1.25	4.13	1.52	4.26	3.45	7.86	3.68	4.96	3.50	1.16	.06	41.93
South Dakota	.54	.57	1.87	1.28	3.18	1.46	2.51	2.24	2.75	.96	.40	.18	17.94
Tennessee	13.04	6.44	5.62	2.16	5.87	4.57	6.82	5.89	4.11	1.38	4.94	2.93	63.77
Texas	1.49	2.07	.61	2.77	3.63	3.31	4.13	2.36	3.64	.54	.36	.29	25.20
Utah	1.73	.67	1.02	.61	1.05	.24	1.20	.22	.91	.34	1.32	1.03	10.34
Virginia	2.68	2.32	3.34	1.54	5.79	3.20	5.76	3.68	5.69	2.24	2.34	3.59	42.17
Washington	5.49	5.12	5.48	2.48	1.07	1.70	.78	1.02	.97	5.94	5.42	5.54	41.01
West Virginia	6.42	3.50	3.71	2.14	4.77	6.01	5.77	3.16	5.64	2.27	5.29	2.54	51.22
Wisconsin	2.37	.90	2.26	3.24	3.00	4.00	5.49	2.69	2.01	1.41	1.22	1.97	28.55
Wyoming	1.12	.48	1.28	1.61	1.84	1.27	1.58	.57	2.33	.57	.95	.43	14.03
Alaska	1.14	.98	.86	1.19	1.46	1.98	2.26	2.35	3.06	1.65	1.13	1.76	19.82
Hawaii	10.10	6.70	7.02	15.38	6.76	2.88	5.32	6.36	2.96	3.73	9.83	11.46	88.50
Puerto Rico	3.93	7.19	1.24	5.52	4.84	4.19	4.32	7.90	5.40	10.00	10.02	3.40	67.95

PERCENT OF NORMAL PRECIPITATION

Table 5 — YEAR 1950

Section	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	94	80	118	78	102	85	160	110	125	61	53	77	98
Arizona	47	76	45	6	30	100	145	37	62	3	15	2	54
Arkansas	217	173	88	67	159	86	190	191	161	59	59	30	122
California	142	72	93	87	80	87	127	29	95	296	225	113	124
Colorado	138	69	48	68	61	65	100	57	124	20	100	72	74
Florida	14	34	120	104	79	56	106	89	118	168	41	103	91
Georgia	44	48	118	57	117	75	118	76	131	144	38	97	89
Idaho	162	97	168	70	57	129	105	90	118	150	100	108	115
Illinois	305	202	74	146	62	140	123	108	89	49	108	67	117
Indiana	341	224	89	141	75	145	114	105	160	53	172	85	138
Iowa	150	143	61	106	123	126	129	64	51	55	34	69	93
Kansas	41	74	43	44	101	72	295	189	46	58	14	07	101
Kentucky	284	151	79	75	159	157	159	128	172	67	150	62	139
Louisiana	120	102	110	114	134	157	108	75	83	73	50	86	101
Maryland-Delaware	63	103	120	51	127	81	103	77	198	85	125	103	102
Michigan	206	149	123	165	57	103	147	89	98	56	121	120	114
Minnesota	203	47	168	125	144	67	106	55	92	109	92	158	103
Mississippi	157	139	114	68	109	95	148	126	129	69	74	86	112
Missouri	239	126	99	91	100	86	127	178	50	38	62	48	102
Montana	153	80	152	105	52	118	117	117	127	91	113	100	107
Nebraska	80	119	85	51	124	55	172	138	106	76	61	21	100
Nevada	114	29	92	63	59	60	208	20	181	100	199	103	95
New England	117	101	95	89	66	99	68	118	54	65	179	127	98
New Jersey	68	115	116	61	96	72	108	106	90	54	164	112	97
New Mexico	47	42	20	29	22	105	192	45	114	41	10	5	74
New York	134	133	114	70	71	80	96	126	87	74	158	115	104
North Carolina	73	49	95	43	134	111	143	63	107	108	55	91	92
North Dakota	217	70	177	97	152	89	78	72	158	61	80	119	106
Ohio	287	177	80	124	72	110	113	86	145	94	182	87	126
Oklahoma	125	125	20	50	150	78	328	166	104	20	18	01	104
Oregon	180	103	151	84	53	149	68	100	66	298	126	116	135
Pennsylvania	131	137	130	75	99	88	108	88	111	87	214	117	113
South Carolina	63	31	104	47	121	74	132	64	120	120	50	113	82
South Dakota	98	104	168	62	112	41	104	107	177	79	61	35	94
Tennessee	260	143	105	50	142	107	151	147	129	49	135	65	127
Texas	82	116	31	95	98	111	159	100	122	20	17	13	83
Utah	148	53	75	49	96	34	125	20	88	28	142	94	78
Virginia	82	77	92	47	152	77	123	82	174	75	93	117	100
Washington	124	134	168	104	53	100	115	134	54	197	106	102	118
West Virginia	177	112	96	61	119	134	124	78	187	81	188	78	118
Wisconsin	191	75	139	131	85	95	161	78	54	59	65	158	101
Wyoming	127	56	114	98	93	73	120	50	194	50	122	55	96

PERCENT OF NORMAL ANNUAL PRECIPITATION

Table 6 — (For past years)

Section	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Alabama	80	119	90	103	92	114	109	91	111	101	86	100	89	112	106	124	114	125	106	98
Arizona	142	98	86	76	112	103	94	92	93	125	153	69	90	99	82	100	69	77	97	54
Arkansas	97	105	101	88	118	72	114	100	104	93	96	103	72	114	139	121	84	115	117	122
California	102	65	84	75	92	84	121	125	66	150	151	100	100	100	114	73	57	88	70	124
Colorado	85	86	92	66	96	97	88	117	65	102	136	113	86	100	102	102	110	93	102	74
Florida	81	100	104	99	98	108	110	81	102	98	110	100	90	100	104	103	137	118	102	91
Georgia	75	116	83	97	89	118	105	84	98	94	85	106	94	108	108	101	119	127	96	89
Idaho	83	108	103	89	68	91	110	108	76	121	119	111	92	89	121	114	101	118	86	115
Illinois	103	99	95	90	114	82	100	110	97	78	108	112	95	92	125	109	101	100	112	117
Indiana	98	109	104	76	100	86	117	105	99	83	83	105	95	86	127	92	102	105	115	138
Iowa	111	102	79	85	104	82	87	114	79	97	116	103	98	117	109	109	111	89	89	93
Kansas	96	88	82	74	106	68	77	101	75	95	137	123	91	139	112	105	102	109	120	101
Kentucky	93	109	112	82	127	84	110	102	105	86	74	110	83	89	113	101	92	111	114	139
Louisiana	94	111	97	105	101	81	104	89	91	132	107	101	92	109	109	130	112	100	109	101
Maryland-Delaware	92	113	118	110	114	106	124	99	104	104	78	114	83	102	121	90	93	130	97	102
Michigan	98	109	99	84	94	89	102	103	99	107	106	115	105	94	116	90	108	93	105	114
Minnesota	88	85	81	80	101	72	102	112	85	100	115	114	107	117	108	111	100	89	106	103
Mississippi	98	127	94	100	97	83	104	92	101	114	87	91	78	114	111	123	109	123	114	112
Missouri	100	94	93	87	119	73	92	101	94	80	104	114	94	96	132	109	98	98	119	102
Montana	67	107	107	77	72	77	87	109	83	99	114	110	98	101	97	113	106	110	83	107
Nebraska	85	91	90	63	100	64	78	98	72	77	108	111	76	121	100	109	103	94	112	100
Nevada	89	92	74	79	96	114	99	131	94	123	149	82	109	95	126	108	64	72	89	95
New England	98	104	106	102	92	119	113	120	90	102	77	106	96	96	117	94	97	100	86	98
New Jersey	81	103	109	100	93	104	104	115	94	106	82	111	86	103	115	87	101	116	87	97
New Mexico	126	112	89	70	102	93	104	101	91	104	195	108	80	101	69	93	76	93	107	74
New York	97	107	96	89	97	102	111	106	87	103	81	112	100	95	125	94	110	103	87	104
North Carolina	88	106	79	108	97	121	106	97	99	91	78	104	88	108	110	99	103	114	109	92
North Dakota	88	100	79	56	105	52	99	90	83	102	136	110	107	125	87	97	106	102	95	106
Ohio	101	98	102	70	107	88	118	104	99	101	83	101	94	88	118	95	108	111	99	126
Oklahoma	96	103	93	83	112	69	86	101	81	103	143	121	88	111	127	108	96	97	118	104
Oregon	93	101	107	98	78	88	132	100	79	112	113	118	91	76	121	104	102	132	86	135
Pennsylvania	89	93	108	93	96	101	111	96	88	104	81	114	90	96	117	94	98	109	91	113
South Carolina	76	112	75	93	89	119	108	85	97	90	93	99	92	101	116	94	116	124	102	88
South Dakota	65	108	91	65	81	49	89	83	74	80	126	121	88	114	91	144	98	104	90	94
Tennessee	87	120	103	95	100	95	113	100	100	86	74	102	84	109	116	109	89	116	115	127
Texas	94	110	84	86	121	99	86	87	79	113	140	107	82	116	108	122	86	80	114	83
Utah	75	100	79	71	81	127	110	113	86	118	155	94	105	112	136	125	124	96	111	78
Virginia	91	107	94	109	111	108	127	101	99	106	74	116	86	107	113	93	96	125	108	100
Washington	122	128	137	111	84	94	125	85	93	104	98	96	79	74	112	108	105	128	87	118
West Virginia	99	102	113	87	119	98	116	99	101	104	84	113	93	104	117	85	85	115	105	118
Wisconsin	97	84	89	100	99	83	90	136	86	107	111	115	96	95	115	97	98	79	92	101
Wyoming	81	93	85	76	86	92	109	107	72	102	127	108	87	109	122	109	117	89	96	96

Table 7

TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1950

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
ALABAMA														
Auburn	EVAP	2.47	3.54	5.68	6.27	7.95	8.78	B7.41	8.26	5.24	B4.77	B2.96	-	-
	DEP													
	WIND	1610	1415	2245	1383	1138	1040	1099	1183	1535	1498	1214	-	-
Fairhope	EVAP	2.05	2.65	B4.34	B4.65	6.37	B6.33	B5.21	B5.98	B4.74	B4.16	2.53	-	-
	DEP	+.07	+.29	+.70	-.26	+.25	+.13	-.67	+.37	+.21	+.48	+.16	-	-
	WIND	497	695	1020	908	564	602	451	552	621	668	869	-	-
ARIZONA														
Bartlett Dam	EVAP	3.84	5.31	8.07	12.40	16.21	17.23	14.71	16.27	13.25	12.66	8.33	6.54	134.82
	DEP	-.25	+.81	+.97	+1.97	+1.66	+.20	-2.52	+1.77	+.65	+3.41	+2.27	+2.35	+13.19
	WIND	2000	1645	1660	1680	2080	2290	2230	2320	1940	2215	2495	2510	25,065
Davis Dam	EVAP	3.42	4.99	7.76	11.30	B11.95	12.87	12.02	11.69	9.17	7.17	6.09	4.31	102.74
	DEP													
	WIND	1071	1170	1205	1146	841	806	779	454	496	399	967	1023	10,357
Mesa Exp. Farm	EVAP	B2.40	3.37	5.78	8.00	9.96	B10.73	10.53	9.72	8.31	6.24	4.08	3.22	82.34
	DEP	-.43	-.12	+.20	+.46	-.22	-.57	-.70	+.35	+.86	+.85	+.50	+.67	+1.89
	WIND	675	719	887	753	815	737	998	659	737	494	568	517	8559
Pierce Ferry	EVAP	B2.85	3.61	8.27	12.93	16.08	20.86	20.92	19.98	14.75	9.79	5.49	3.36	138.89
	DEP													
	WIND													
Roosevelt	EVAP	2.70	3.55	7.33	10.50	13.10	14.80	13.00	12.99	B9.74	7.88	4.23	-	-
	DEP	+.87	+.89	+2.43	+3.34	+2.68	+2.55	+.72	+2.73	+1.64	+2.55	+1.36	-	-
	WIND	1550	1150	2530	2400	2730	2280	2940	1870	1620	1160	1095	-	-
Sacaton	EVAP	3.67	4.73	7.44	11.32	13.57	14.26	13.31	11.84	9.19	8.22	5.43	4.64	107.62
	DEP													
	WIND	1434	1312	1689	1360	1243	1017	1163	948	983	992	992	776	13,909
San Carlos Res.	EVAP	2.27	3.46	6.79	10.72	13.39	14.70	12.57	12.81	9.77	7.83	4.59	3.31	102.21
	DEP													
	WIND	819	707	1197	1473	1749	1650	2036	1395	1062	729	676	610	14,103
Sierra Ancha	EVAP	2.01	3.28	5.46	8.34	10.07	B14.36	9.17	11.72	7.63	7.59	4.62	3.38	87.63
	DEP	+.05	+.92	+1.19	+1.48	+.93	+3.53	-1.19	+3.04	-.10	+1.94	+1.28	+1.17	+14.24
	WIND	1668	1589	2013	2097	2259	2038	1734	1747	688	620	532	442	17,427
Tucson-Univ. of Arizona	EVAP	2.33	3.05	6.22	8.93	10.96	12.10	9.88	10.97	8.82	7.51	5.10	3.96	89.83
	DEP	+.01	-.04	+.42	+.44	-.26	-.63	-1.84	+1.59	+.81	+1.74	+1.77	+2.87	+6.88
	WIND	497	389	742	642	642	527	405	214	435	553	782	681	6509
Yuma Citrus	EVAP	3.17	4.62	7.52	9.50	11.92	13.36	13.82	13.26	9.90	7.05	5.41	3.80	103.33
	DEP	-.82	-.36	-.50	-.95	-1.75	-1.50	-2.40	-1.04	-1.56	-1.21	+.04	-.04	-12.08
	WIND	457	374	881	785	907	636	1075	666	599	237	648	503	7768
ARKANSAS														
Hope	EVAP	B2.34	B2.39	B4.91	4.77	B5.86	6.42	5.94	5.86	B4.23	3.84	B2.51	B1.73	50.80
	DEP	.00	-.27	+.53	-.77	-.55	-.68	-2.22	-1.66	-1.74	-.84	-.16	-.24	-8.68
	WIND	1720	1155	1684	1384	1008	850	722	697	869	784	-	1045	-
Narrows Dam	EVAP	-	-	-	-	-	-	-	-	-	-	-	1.29	-
	DEP													
	WIND	-	-	-	-	-	-	-	-	-	-	-	1112	-
Nimrod Dam	EVAP	-	-	-	-	B5.01	B6.81	B6.04	B6.16	B3.67	B3.46	-	-	-
	DEP	-	-	-	-	+1.55	-.35	-1.83	-1.02	-1.85	-.78	-	-	-
	WIND	-	-	-	-	802	823	708	671	643	703	-	-	-
Norfolk Dam	EVAP	-	-	-	5.70	B6.31	7.32	B5.89	B5.40	B3.69	B4.40	B2.60	-	-
	DEP													
	WIND	-	-	-	2112	1284	1235	2366	845	871	-	-	-	-
Russellville	EVAP	-	-	B3.60	4.57	B4.67	6.88	B5.74	5.63	3.43	2.97	1.91	.95	-
	DEP	-	-	-.26	-.51	-1.36	+.90	-2.09	-1.80	-2.12	-1.09	-.14	-.32	-
	WIND	-	-	1304	701	451	478	339	232	274	228	565	655	-
Stuttgart 9 ESE	EVAP	-	-	B3.03	4.19	4.37	5.73	5.61	B4.74	B2.64	B3.11	B2.02	B1.36	-
	DEP	-	-	-.39	-.56	-1.54	-1.37	-1.81	-2.32	-2.54	-.57	-.06	+.14	-
	WIND	-	-	2255	2010	1120	1260	980	680	780	880	1740	1475	-
CALIFORNIA														
Backus Ranch	EVAP	1.91	3.88	8.42	11.68	13.58	16.15	17.87	17.51	11.51	8.62	4.49	3.91	119.53
	DEP	-.74	+.17	+2.28	+2.26	+.07	-.34	-.92	-.29	-1.24	+1.00	+.11	+.99	+3.35
	WIND	1644	1254	2905	3134	2838	3268	2744	2348	2434	1627	1035	1096	26,327
Beaumont WB	EVAP	2.27	3.87	5.55	6.21	7.91	10.99	12.00	12.58	8.74	8.69	6.48	5.26	90.55
	DEP	-2.06	+.28	+.45	+.41	-.83	+.54	-1.77	+.32	-1.26	+1.55	+.70	+1.20	-.47
	WIND	2094	1529	2040	1181	1495	1534	1619	1470	1689	1727	2231	2089	20,698
Boca	EVAP	-	-	-	-	6.81	8.34	10.64	9.20	5.46	B4.16	-	-	-
	DEP	-	-	-	-	-.17	+.06	+.08	-.28	-1.54	+.12	-	-	-
	WIND	2556	1497	1690	1835	1093	1247	965	740	603	1087	1622	1088	16,023
Camp Pardee	EVAP	.69	1.13	1.84	4.51	8.03	9.77	12.41	10.83	6.52	3.83	B.94	B.54	61.04
	DEP	-.05	+.03	-.40	+.98	+1.14	+.51	+.89	+.82	-1.01	+.13	-.35	-.20	+2.49
	WIND	1082	718	802	-	-	-	1148	1123	973	917	816	692	-
Chula Vista	EVAP	2.45	2.38	4.78	5.29	6.58	7.18	7.17	6.97	5.52	4.80	3.32	2.34	58.78
	DEP	-.37	-.86	-.12	-.50	-.20	+.20	-.37	-.19	-.45	+.06	-.34	-.45	-3.59
	WIND	2269	1579	2673	2567	3097	2943	2840	2927	2302	2234	1719	1513	28,663
Davis Agri. College	EVAP	B1.77	2.69	3.76	7.48	9.72	9.84	12.37	10.32	7.84	B4.65	B2.35	-	-
	DEP	+.48	+.87	+.12	+1.97	+1.52	+.15	+1.62	+.63	-.16	-.35	-.08	-	-
	WIND	-	1169	1315	1596	2208	1549	1732	1509	1368	1377	1804	1182	-
Fall River	EVAP	-	-	2.73	5.75	7.95	8.97	12.79	10.57	6.10	3.32	1.07	B.52	-
	DEP	-	-	-.28	+.91	+.60	-.05	+.71	-.25	-.99	-.47	-.17	-.26	-
	WIND	-	1002	2311	2382	2283	1881	1897	1687	1199	1709	1066	735	-
Friant Gov. Camp	EVAP	-	B2.24	3.83	7.23	11.95	14.47	17.34	14.25	9.61	7.07	B2.26	1.08	-
	DEP	-	+.29	+.15	+1.56	+1.67	+.70	+1.50	+.49	-.23	+1.35	-.34	-.17	-
	WIND	1267	1046	1097	913	1338	1831	1604	1265	1002	997	970	868	14,198
Lakeshore	EVAP	-	-	2.57	B5.62	7.19	7.47	10.73	9.70	5.87	B2.99	B1.39	B.82	-
	DEP													
	WIND	356	267	459	625	307	208	203	203	188	531	397	250	3994
Lodi	EVAP	1.56	B1.74	3.24	6.24	8.46	10.30	11.26	9.30	6.99	3.85	1.16	.69	64.79
	DEP	+.54	-.10	-.35	+.46	-.41	-.39	-.64	-1.02	-.75	-.59	-.84	-.31	-4.40
	WIND	3001	1585	2130	1848	2313	2701	2071	1527	1488	1158	1999	1175	22,996
Newark	EVAP	B1.92	2.20	3.56	5.10	6.92	7.12	9.14	8.83	6.35	4.35	B2.41	1.28	59.18
	DEP	+.56	+.30	+.14	+.05	-.27	-1.15	+.39	+1.10	-.25	+.03	+.06	+.02	+.98
	WIND	2035	1610	1983	1939	2274	2532	2051	2103	1955	1938	1597	1388	22,405

See reference notes at end of table.

Table 7-Continued

TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1950

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
CALIFORNIA (Cont'd.)														
Oakdale, Woodward Dam	EVAP	B2.18	B1.44	3.14	5.71	10.17	12.16	15.14	13.01	B9.40	-	2.62	-	-
	DEP	+.97	-.32	-.16	+.45	+.74	-.30	+.50	+.24	-.45	-	+.11	-	-
	WIND	3410	2830	2810	2270	3250	3525	3410	3605	-	-	2580	2890	-
Salt Spring PH.	EVAP	-	-	B3.17	B7.74	8.36	7.73	11.89	11.43	6.82	4.61	3.45	1.89	-
	DEP													
	WIND													
Shasta Dam	EVAP	-	B1.80	3.09	7.02	9.31	9.83	13.15	11.68	7.59	B4.18	2.13	B.43	-
	DEP													
	WIND	1254	1255	1495	1920	1866	1834	1620	815	767	1211	1195	1050	16,282
Tahoe	EVAP	-	-	-	-	-	B5.16	6.76	B5.94	B3.52	-	-	-	-
	DEP	-	-	-	-	-	+.85	+1.27	+.22	-.66	-	-	-	-
	WIND	-	910	-	1095	856	766	631	546	593	1000	1664	1490	-
Turntable Creek	EVAP	-	B2.58	3.13	7.02	8.69	9.13	12.50	10.84	8.43	-	B3.36	B3.14	-
	DEP													
	WIND	2686	1687	2029	2456	2241	2106	2016	1581	2080	2682	2192	1387	25,143
COLORADO														
Bonny Dam	EVAP	-	-	-	B8.33	9.04	14.66	10.90	9.93	6.99	8.10	-	-	-
	DEP													
	WIND	-	-	5712	5531	4587	4475	2961	2635	2819	3410	3470	3029	-
Conejos 3NNW	EVAP	-	-	-	B9.10	8.93	11.18	8.23	7.79	7.81	5.94	-	-	-
	DEP	-	-	-		+.08	+2.19	+1.31	+.86	+.81	+1.06	-	-	-
	WIND	-	-		3882	3860	3132	1778	1506	2558	2654	2414	1640	-
Estes Park	EVAP	-	-	-	B6.66	6.20	9.71	8.22	7.97	5.07	7.42	-	-	-
	DEP													
	WIND	-	-	6468	4350	3500	2832	2173	2093	2022	3643	5729	6264	-
Fort Collins (a)	EVAP	-	-	-	B5.57	B4.67	6.98	5.74	5.88	3.96	3.67	-	-	-
	DEP	-	-	-	+1.18	-.06	+1.40	-1.15	-.58	-1.39	+.59	-	-	-
	WIND	-	-	3090	2457	1839	1370	1038	999	921	1270	1640	1306	-
Grand Junction	EVAP	-	-	-	B11.33	14.78	22.42	16.51	17.05	11.07	10.60	-	-	-
	DEP													
	WIND	-	-	3866	4438	4844	5428	3845	4091	4033	3828	2687	2464	-
Grand Lake	EVAP	-	-		-	B4.52	B7.48	6.16	5.65	B4.04	B3.03	-	-	-
	DEP													
	WIND	-	-	1939	-	1530	1283	1109	1009	908	1125	1233	1102	-
Green Mt. Dam	EVAP	-					B8.03	B5.68	5.93	4.13	B4.25	-	-	-
	DEP													
	WIND	-	-	2959	2583	2209	1655	1335	1236	1329	1439	2201	1904	-
John Martin Dam	EVAP		B3.08	5.77	8.78	11.36	13.52	11.90	9.67	6.56	6.09	-	-	-
	DEP	-	-	-	+1.69	+2.17	+2.80	-.33	-1.54	-2.31	+.87	-	-	-
	WIND	3007	2388	3685	4240	4545	4546	3692	2898	3044	2831	3010	2900	40,605
Montrose #1	EVAP	1.56	1.50	3.74	6.88	8.24	11.37	8.17	7.42	5.15	4.51	2.03	1.33	61.90
	DEP	+.35	+.02	+.71	+1.81	+1.08	+2.44	-1.36	+.14	-1.05	+1.01	+.41	+.07	+5.63
	WIND	714	376	931	1247	1177	935	348	150	280	405	281	175	7019
Platoro Dam	EVAP	-	-	-	-	-		B5.00	B5.80	-	-	-	-	-
	DEP													
	WIND	-	-	3810	3720	3810	3418	2081	2111	2308	2750	3042	2650	-
Pueblo City Res.	EVAP	-	B3.43	B7.55	7.94	10.03	12.30	11.16	9.39	6.59	6.94	-	B2.03	-
	DEP	-	+.46	+2.36	+.88	+1.59	+1.68	-.35	-.50	-1.55	+1.38	-	-.79	-
	WIND	4700	2960	5010	4120	4190	3550	3320	2610	2390	2520	2690	2090	40,250
San Luis Lakes	EVAP	-		B4.65	7.78	9.57	11.03	-	-	6.39	5.94	-	-	-
	DEP													
	WIND	-	-	3980	3880	3710	2760	1590	1890	2140	2200	1850	1390	-
Sugar Loaf Res.	EVAP	-	-	-	-	-	3.63	4.25	5.24	4.40	4.13	-	-	-
	DEP													
	WIND	-	-	-	-	-	1900	1104	757	779	1266	-	-	-
Vallecito Dam	EVAP	-	-	-	-	6.28	8.16	6.42	7.25	4.77	4.54	-	-	-
	DEP													
	WIND	-		995	891	950	751	609	969	857	1018	808	-	-
Wagon Wheel Gap	EVAP	-	-	-	-	-	B9.81	6.88	6.87	5.62	-	-	-	-
	DEP	-	-	-	-	-	+1.22	-.37	+1.09	+.15	-	-	-	-
	WIND	-	-	2657	2732	2593	2261	1228	1281	1362	1471	-	-	-
FLORIDA (b)														
Belle Glade Exp.Station	EVAP	3.23	3.51	5.83	6.42	6.97	B6.86	5.65	B5.83	6.00	B4.44	3.46	3.03	B61.23
	DEP	+.91	-.54	+.04	-.22	-.28	+.58	-.67	-.53	+.67	-.59	-.31	+.02	-1.82
	WIND	-	3497	-	4293	-	-	-	-	5217	-	5313	-	-
Bell Glade Hrcn Gate	EVAP	-	-	-	-	5.90	-	4.31	4.29	5.13	2.83	3.16	2.95	-
	DEP	-	-		-	+.20		-.30	-.56	+1.03	-1.27	-.08	+.22	-
	WIND													
(b)														
Clewiston U.S. Engineers	EVAP	2.99	3.65	5.41	5.95	6.87	7.05	5.97	5.76	5.28	4.40	3.74	2.50	59.57
	DEP	+.27	+.09	+.71	+.28	+.81	+1.77	+.73	+.64	+.63	-.13	+.39	-.17	+6.02
	WIND	-	-	-	-	118	157	-	-	209	187	169	-	-
Hialeah	EVAP	B4.78	B4.75	6.52	B7.61	7.95	7.45	7.50	B6.99	5.92	-	4.57	3.54	-
	DEP	+1.33	+.39	+.45	+.44	+.27	+.54	+.86	+.21	+.20	-	+.54	+.25	-
	WIND	-	1378	1822	1707	1642	1320	1369	1026	1676	1634	1289	1206	-
Loxahatchee	EVAP	2.88	B2.88	B4.75	B5.55	B8.16	-	B6.90	B6.03	5.04	B3.73	3.15	2.58	-
	DEP	-.62	-1.30	-1.00	-1.50	+.64	-	+.72	-.68	-1.05	-1.55	-.81	-.56	-
	WIND													
Moore Haven Lock 1 (b)	EVAP	3.71	4.28	6.44	B7.17	8.18	8.04	B6.80	6.68	6.53	B4.77	4.10	2.83	B69.53
	DEP	+.88	-.86	+1.74	+1.61	+2.23	+2.96	+1.86	+1.79	+2.21	+.23	+.67	+.10	+17.14
	WIND	1663	1371	2098	1688	1528	1367	1156	1401	1971	-	1501	1359	-
(b)														
Okeechobee Hrcn Gate 6	EVAP	4.70	4.54	6.17	7.32	7.65	7.90	6.22	6.04	5.59	4.74	-	2.51	-
	DEP	+1.56	+.66	+1.05	+1.10	+1.13	+2.16	+.28	-.15	+.67	+.03	-	-.66	-
	WIND													
Orlando Water Plant	EVAP	-	-			7.81	7.95	6.66	6.80	B5.54	4.66	3.12	B2.12	-
	DEP	-	-	-	-	-.19	+1.08	-.17	+.74	+.40	-.16	-.31	-.55	-
	WIND		-	-	-	974	1040	-	1022	1092	1240	1018	876	-
Port Mayaca S.L.Canal (b)	EVAP		-	-	8.04	7.91	-	5.58	5.44	5.91	3.95	3.60	2.63	-
	DEP				+2.56	+2.29	-	+.82	+.33	+1.86	+.17	+.42	-.19	-
	WIND													
Tamiami Trail 40 Mi Bend	EVAP	4.17	B4.84	6.27	7.27	7.54	7.04	B7.50	B6.65	B5.52	B5.20	4.25	3.43	B69.68
	DEP	+.70	+.58	+.33	+.45	+.29	+.35	+1.12	+.20	-.32	-.11	+.23	+.35	+4.17
	WIND													

See reference notes at end of table.

Table 7 -Continued

TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1950

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
GEORGIA														
Ailey	EVAP	2.10	B2.69	B4.53	B5.77	6.30	B7.65	7.83	-	-	-	-	-	-
	DEP													
	WIND	825	912	1460	809	494	534	453	-	-	-	-	-	-
Athens Airport	EVAP	2.12	3.02	5.25	6.56	7.93	B8.61	7.93	7.29	4.93	B4.66	B3.81	B2.37	B64.48
	DEP													
	WIND	1409	1773	3131	2132	1588	1917	1997	1673	1739	2384	2680	2593	25,007
Experiment	EVAP	1.96	2.93	B4.90	5.67	6.71	7.73	6.70	B6.82	4.49	3.29	2.67	1.59	B55.46
	DEP	-.12	+.39	+.51	-.14	-.63	-.03	-.33	+.54	-.93	-.92	+.09	-.36	-2.08
	WIND	2356	1996	2883	1823	1288	1463	1526	946	1087	973	1780	1624	19,745
Hoggards Mill	EVAP	2.46	3.24	5.17	5.69	7.31	7.68	5.88	7.32	5.19	3.96	B2.91	B1.45	B58.26
	DEP													
	WIND	617	634	998	691	455	380	272	303	568	543	586	520	6567
Rome Airport	EVAP	1.88	2.62	B3.82	B5.22	B6.32	B6.78	7.15	B6.28	4.26	3.21	B2.46	B1.36	B51.36
	DEP													
	WIND	1210	1465	1996	1571	1117	1052	855	731	692	645	1336	1352	14,022
Tifton	EVAP	2.38	3.04	B4.26	5.58	B6.51	7.51	B6.60	B6.39	4.44	3.67	2.45	1.76	B54.59
	DEP	-.01	+.23	-.49	-.44	-1.03	+.48	+.09	+.40	-.48	-.38	-.23	-.18	-2.04
	WIND	1116	1136	1717	1177	762	675	657	322	560	576	535	669	9902
IDAHO														
Aberdeen Exp. Sta.	EVAP	-	-	-	-	B7.26	6.20	7.71	6.26	3.62	-	-	-	-
	DEP	-	-	-	-	+.30	-1.21	-1.15	-1.58	-1.51	-	-	-	-
	WIND	3619	2570	3947	3278	-	1634	1247	857	1078	-	3024	2061	-
Arrowrock Dam	EVAP	-	-	-	-	6.74	6.71	10.65	8.52	5.75	-	-	-	-
	DEP	-	-	-	-	+.35	-.55	+.01	-.95	-.05	-	-	-	-
	WIND	-	-	-	-	1926	1419	1395	1129	998	-	-	-	-
Blackfoot Dam	EVAP	-	-	-	-	-	B8.21	8.53	7.35	B4.41	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	1735	1484	-	-	-	-	-
Lifton Pumping Sta.	EVAP	-	-	-	4.05	6.10	7.67	8.85	7.89	5.01	3.07	-	-	-
	DEP	-	-	-	+.03	-.42	+.06	-.42	-.54	-.75	+.09	-	-	-
	WIND	3080	-	1908	2550	2417	1884	1349	1212	1411	1554	1917	1358	-
Minidoka Dam	EVAP	-	-	-	-	9.67	9.73	13.51	11.21	7.64	5.15	-	-	-
	DEP													
	WIND	4850	3320	-	-	4980	4025	4295	3215	3655	3645	4805	4790	-
Moscow Univ. of Idaho	EVAP	-	-	-	3.53	6.12	B5.50	8.10	7.39	5.07	-	-	-	-
	DEP	-	-	-	+.45	+1.92	+.27	+.36	+1.28	+1.64	-	-	-	-
	WIND	-	-	-	2692	3465	1395	989	749	727	-	-	-	-
Palisades Dam	EVAP	-	-	-	-	5.71	6.43	7.31	7.42	4.16	2.72	-	-	-
	DEP													
	WIND													
ILLINOIS														
Carbondale Sewage Plant	EVAP	-	-	B3.62	-	B6.19	B6.89	7.43	B5.82	B3.64	B2.84	-	-	-
	DEP													
	WIND	-	-	3125	-	1720	1591	1239	575	925	1010	-	-	-
Rockford 4NE	EVAP	-	-	-	-	-	-	-	B4.44	B3.51	3.76	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	-	400	742	1207	-	-	-
Springfield WB Airport	EVAP	-	-	-	B4.76	8.09	8.65	B8.41	B6.01	4.60	5.33	-	-	-
	DEP	-	-	-	-.43	+2.19	-1.67	+.02	-1.21	-1.07	+1.61	-	-	-
	WIND	-	-	-	4347	3111	3239	2315	2032	2434	2830	-	-	-
Urbana Eng. Campus	EVAP	-	-	-	-	-	-	B5.29	4.26	B2.58	2.35	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	553	510	620	734	-	-	-
INDIANA														
Evansville WB Airport	EVAP	-	-	-	4.69	5.76	7.37	7.35	5.47	3.91	3.75	-	-	-
	DEP													
	WIND	-	-	-	2621	1741	1785	1627	966	1532	1402	-	-	-
Kendallville	EVAP	-	-	-	-	-	7.17	B6.94	5.95	B3.56	2.48	-	-	-
	DEP													
	WIND	-	-	-	-	-	1166	730	699	748	784	-	-	-
Oaklandon Geist Res.	EVAP	-	-	-	2.95	5.07	-	-	5.03	B3.08	2.46	-	-	-
	DEP													
	WIND	-	-	-	2911	1474	-	-	512	663	960	-	-	-
Valparaiso Wtr. Wks.	EVAP	-	-	-	2.40	5.60	6.37	B5.08	4.80	2.54	2.09	-	-	-
	DEP													
	WIND	-	-	-	2392	1552	774	274	292	405	803	-	-	-
IOWA														
Ames 3SW	EVAP	-	-	-	3.86	5.48	7.85	7.27	6.71	5.29	4.16	-	-	-
	DEP	-	-	-	-1.04	-1.09	+.05	-1.98	-.84	-.30	-.54	-	-	-
	WIND	-	-	-	3194	2715	2334	1204	1458	1218	1776	-	-	-
Cherokee	EVAP	-	-	-	3.77	5.30	8.01	B6.75	5.15	4.22	B3.76	-	-	-
	DEP	-	-	-	-.72	-.87	+1.14	-1.44	-1.74	-.98	+.31	-	-	-
	WIND	-	-	-	3750	2526	1882	973	996	954	1989	-	-	-
Iowa City	EVAP	-	-	-	B4.17	5.91	7.39	B6.54	5.62	4.09	4.28	-	-	-
	DEP	-	-	-	-.75	+.20	+.85	-1.26	-.69	-.93	+.96	-	-	-
	WIND	-	-	-	3245	2243	1847	1111	1224	1176	1699	-	-	-
Norwich 2E SCS Farm	EVAP	-	-	-	-	8.32	B8.53	-	B5.71	4.80	B4.63	-	-	-
	DEP	-	-	-	-	+1.64	+.52	-	-2.12	-1.59	+.18	-	-	-
	WIND	-	-	-	-	2746	2248	-	1214	1360	2078	-	-	-
KANSAS														
Cedar Bluff Dam	EVAP	-	-	-	-	B10.89	B13.20	9.66	8.66	6.08	6.98	-	-	-
	DEP													
	WIND	-	-	-	-	4700	4793	3058	1952	1935	2734	-	-	-
Fall River Dam	EVAP	-	B2.56	4.39	6.90	8.74	8.90	B7.32	B7.18	5.52	4.94	-	-	-
	DEP													
	WIND	-	3539	6207	5805	4998	3732	2411	2208	1982	2324	-	-	-
Hays 1S	EVAP	-	-	-	9.04	12.24	16.03	11.06	8.98	6.85	B7.73	-	-	-
	DEP	-	-	-	+1.05	+2.61	+3.99	-4.02	-4.49	-4.28	+.38	-	-	-
	WIND	-	-	-	5326	4930	5330	3381	2431	2785	3282	-	-	-
Kanapolis Dam	EVAP	-	-	-	8.23	10.32	13.74	B9.81	7.15	6.32	7.13	-	-	-
	DEP													
	WIND	-	-	-	7112	5571	5742	3648	2735	2929	4158	-	-	-

See reference notes at end of table.

Table 7-Continued

TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1950

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
KANSAS (Cont'd.)														
Manhattan Agr. Farm	EVAP	-	-	-	-	7.40	10.47	B7.03	6.41	5.74	5.66	-	-	-
	DEP	-	-	-	-	-.05	+1.53	-3.39	-2.70	-1.73	+1.14	-	-	-
	WIND	-	-	-	-	2379	2276	1466	1196	1456	1689	-	-	-
Tribune 1W	EVAP	-	-	-	7.91	9.93	13.42	B9.69	7.94	6.07	-	-	-	-
	DEP	-	-	-	+.87	+.80	+2.37	-3.16	-3.44	-2.49	-	-	-	-
	WIND	-	-	-	4981	4684	4000	3076	2534	3077	-	-	-	-
KENTUCKY														
Burgin Dix Dam	EVAP	-	-	-	B3.47	4.75	B5.52	B5.58	4.51	B2.72	2.47	-	-	-
	DEP													
	WIND	-	-	-	-	241	382	-	-	-	143	-	-	-
Wolf Creek Dam	EVAP	B1.73	B1.37	B3.49	4.53	5.24	B6.30	B5.23	4.84	3.86	3.17	-	-	-
	DEP													
	WIND	1396	1044	1172	1133	571	474	300	171	329	359	-	-	-
LOUISIANA														
Crowley Exp. Sta. (c)	EVAP	B2.52	B3.93		-	7.58	-	-	-	-	-	-	-	-
	DEP	+.03	+1.25	-	-	+1.66	-	-	-	-	-	-	-	-
	WIND	3023	2213	-	-	2422	-	-	-	-	-	-	-	-
Hackberry	EVAP	-	-	-	-	7.97	B8.04	B7.86	8.19	6.83	-	5.08	4.47	-
	DEP	-	-	-	.	-.12	+.22	-.76	+.15	-.19	-	+1.30	+1.58	
	WIND	-	-	-	-	5434	4093	-	2895	3325	-	4055	4421	-
MARYLAND														
Beltsville	EVAP	-	-	-	-	-	-	B6.42	B5.98	B3.37	2.24	-	-	-
	DEP	-	-	-	-	-	-	-.72	-.21	-1.37	-1.05	-	-	-
	WIND	-	-	-	-	-	-	1227	1313	1265	1075	-	-	-
Salisbury	EVAP	-	-	-	B4.9	B5.61	7.89	B7.07	-	-	B3.06	B2.39	-	-
	DEP													
	WIND	-	-	-	2870	1821	1553	1477	-	-	1292	1979	1985	-
MICHIGAN (d)														
East Lansing Exp. Farm	EVAP	-	-	-	3.48	B6.53	7.75	-	6.64	B3.99	3.19	-	-	-
	DEP													
	WIND													
Germfask Wildfire Refuge	EVAP	-	-	-	-	-	5.83	5.77	4.43	2.19	-	-	-	-
	DEP	-	-	-	-	-	+.03	-.86	-.76	-.86	-	-	-	-
	WIND	-	-	-	-	-	3977	2634	2887	2491	-	-	-	-
MISSISSIPPI														
Sardis Dam	EVAP	-	B2.29	-	B4.20	-	B7.54	B6.89	-	3.85	B3.87	2.59	-	-
	DEP													
	WIND		1904	2139	-	-	1059	852	956	1043	1096	1438	-	-
State College	EVAP		B2.88	5.59	5.73	B7.32	7.55	B7.73	B6.86	-	3.61	2.81	-	-
	DEP													
	WIND	2893	2176	2826	2143	1457	1446	1116	737	881	897	2184	-	-
MISSOURI														
Columbia 9NW U. of Mo.	EVAP	-	-	-	B3.98	6.79	B6.13	5.40	4.26	3.66	4.01	-	-	-
	DEP	-	-	-	-.44	+1.64	-.40	-2.30	-2.28	-1.11	+.92	-	-	-
	WIND	-	-	-	-	1355	953	439	388	555	1242	-	-	-
Lakeside	EVAP	-	1.31	B4.16	4.90	B5.55	6.80	5.67	4.95	4.02	4.04	B2.42	-	-
	DEP	-	-.45	+.64	-.48	-.80	-.42	-3.04	-2.58	-1.53	+.11	+.09	-	-
	WIND	-	1755	3066	2425	1589	1337	939	907	889	1153	2158	-	-
St. Louis Washington U.	EVAP	-	-	-	-	-	5.58	5.61	B4.75	2.96	2.41	-	-	-
	DEP	-	-	-	-	-	-.24	-1.23	-1.08	-1.55	-.50	-	-	-
	WIND	-	-	-	-	-	845	697	585	659	737	-	-	-
MONTANA														
Babb 6NE	EVAP	-	-	-	-	B5.80	B5.31	B6.18	4.99	B4.14	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	1107	691	653	771	-	-	-	-
Bozeman Agr.	EVAP	-	-	-	B3.98	5.58	B5.64	7.70	6.66	4.11	-	-	-	-
	DEP	-	-	-	+.60	+.08	-.29	-.18	-.65	-.40	-	-	-	-
	WIND	-	-	-	-	2209	1811	1530	1300	1230	1065	1495	-	-
Dillon WMCE	EVAP	-	-	-	-	-	-	-	B5.10	B2.93	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	-	-	177	-	-	-	-
Fort Assiniboine	EVAP	-	-	-	B5.95	8.94	8.73	9.86	8.47	6.28	-	-	-	-
	DEP													
	WIND	4946	4962	6053	6150	6158	4677	3561	3683	3312	4892	4878	4506	57,778
Fort Peck	EVAP	-	-	-	-	-	B8.80	9.42	B7.54	B4.91	-	-	-	-
	DEP	-	-	-	-	-	+1.02	-.91	-1.55	-.92	-	-	-	-
	WIND	-	-	-	-	-	3554	2512	2211	-	-	-	-	-
Hungry Horse Dam	EVAP	-	-	-	-	4.86	4.95	7.28	5.41	3.94	-	-	-	-
	DEP													
	WIND													
Lonesome Lake	EVAP	-	-	-	-	7.05	7.00	8.37	6.93	B4.73	-	-	-	-
	DEP													
	WIND													
Malta	EVAP	-	-	-	B2.66	5.17	5.23	5.92	4.35	B2.89	1.72	-	-	-
	DEP	-	-	-	-	-2.12	-1.72	-3.12	-3.28	-	-1.22			
	WIND													
Sherburne Lake	EVAP	-	-	-	-	B5.57	B6.19	6.84	5.15	4.11	-	-	-	-
	DEP	-	-	-	-	-.67	+.30	-1.50	-2.03	-.72	-	-	-	-
	WIND	-	-	-	-	-	3504	1609	1956	1712	-	-	-	-
Terry	EVAP	-	-	-	-	-	-	-	-	5.51	3.09	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	-	-	1649	1738	-	-	-
Tiber Lake	EVAP	-	-	-	B4.90	8.87	8.39	8.71	7.76	5.74	4.13	-	-	-
	DEP													
	WIND													
Valier	EVAP	-	-	-	-	-	6.44	B8.69	B7.97	B7.03	-	-	-	-
	DEP	-	-	-	-	-	-.23	+.20	-.12	+1.05	-	-	-	-
	WIND	-	-	-	-	-	2650	1890	2425	2125	-	-	-	-
Yellowtail Dam	EVAP	-	-	-	-	-	7.81	8.40	B8.72	B4.97	-	-	-	-
	DEP													
	WIND													

See reference notes at end of table.

Table 7-Continued

TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1950

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
NEBRASKA														
Box Butte Exp. Farm (e)	EVAP	-	-	-	-	B6.71	B8.94	10.46	B7.69	B5.12	-	-	-	-
	DEP	-	-	-	-	-.29	+1.15	+.64	-1.75	-1.51	-	-	-	-
	WIND	-	-	-	-	-	5855	4851	5050	5848	-	-	-	-
Bridgeport	EVAP	-	-	-	5.34	B5.99	9.30	8.60	7.42	5.53	4.02	-	-	-
	DEP	-	-	-	+.34	-1.46	+1.81	-.33	-.45	+.06	+.64	-	-	-
	WIND	-	-	-	-	2309	1895	1229	1060	1344	1337	-	-	-
Harlan County Dam	EVAP	-	-	-	-	8.49	B10.86	B7.63	-	B5.86	B6.49	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	2902	-	-	-	-	-	-
Indianola 2N	EVAP	-	-	-	-	8.41	11.77	10.41	8.30	5.78	5.57	-	-	-
	DEP													
	WIND	-	-	-	-	3697	3146	2374	2070	2127	2399	-	-	-
Kingsley Dam	EVAP	-	-	-	4.14	5.78	9.48	7.49	7.01	4.39	B4.07	-	-	-
	DEP	-	-	-	-	-1.85	+.65	-3.53	-3.00	-2.72	-.50	-	-	-
	WIND	-	-	-	2350	2387	2434	1706	1553	1719	-	-	-	-
Lincoln Agr. Farm	EVAP	-	-	-	-	5.76	8.09	6.43	B5.54	4.33	3.51	-	-	-
	DEP	-	-	-	-	-1.24	-.49	-4.11	-3.24	-2.61	-1.12	-	-	-
	WIND	-	-	-	-	1405	839	479	418	500	673	-	-	-
Mitchell 5E (c)	EVAP	-	-	-	-	B5.03	6.82	6.80	B6.16	B3.66	-	-	-	-
	DEP	-	-	-	-	-1.00	-.02	-1.23	-.91	-1.44	-	-	-	-
	WIND	-	-	-	-	4012	2914	1970	1664	2188	-	-	-	-
(c) North Platte Exp. Farm	EVAP	-	-	-	B3.27	-	-	-	-	3.85	-	-	-	-
	DEP	-	-	-	-1.49	-	-	-	-	-1.94	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	2970	-	-	-	-
Rosemont 2S	EVAP	-	-	-	-	9.02	12.16	B9.24	8.50	B6.51	7.05	-	-	-
	DEP													
	WIND	-	-	-	-	5433	4807	3487	3049	3164	4680	-	-	-
Valentine Lakes Game Res.	EVAP	-	-	-	-	B7.34	8.88	7.64	6.47	5.44	4.11	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	2370	1690	2130	2860	-	-	-
NEVADA														
Boulder City	EVAP	3.43	4.41	7.92	12.55	13.86	16.72	15.28	14.05	11.61	8.54	5.28	4.08	117.73
	DEP	-.14	+.13	+.34	+.86	-1.26	-.70	-1.95	-1.19	-.44	+.57	+.41	+.78	-2.59
	WIND	2859	2154	3355	3744	3391	3077	2775	2009	2235	1973	2191	1700	31,463
Fallon Exp. Sta.	EVAP	-	-	B3.80	5.67	6.44	7.53	7.77	5.98	4.12	3.98	1.47	.72	-
	DEP													
	WIND	-	-	3490	3185	2756	2638	1784	1303	1321	1733	1356	1200	-
Lahontan	EVAP	-	-	-	B6.37	-	-	-	-	-	-	-	-	-
	DEP	-	-	-	-.53	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	3780	-	-	-	-	-	-	-	-	-
Ruby Lake	EVAP	-	-	-	-	-	B9.95	10.32	12.10	B6.56	6.16	-	-	-
	DEP													
	WIND	2336	1156	1956	-	1767	2068	1581	1720	B1424	B2003	1902	1368	-
Rye Patch Dam	EVAP	-	-	-	-	B11.72	10.75	14.52	13.00	7.27	6.14	-	-	-
	DEP	-	-	-	-	+2.85	+.23	-.70	-.38	-2.04	+1.13	-	-	-
	WIND	-	-	-	-	-	3021	1225	2392	2153	2377	-	-	-
NEW HAMPSHIRE														
Massabesic Lake	EVAP	-	-	-	-	4.79	-	6.12	4.92	B2.66	-	-	-	-
	DEP	-	-	-	-	-	-	-.19	-.16	-1.02	-	-	-	-
	WIND	-	-	-	-	1393	-	784	721	808	-	-	-	-
West Alton	EVAP	-	-	-	-	-	-	B5.25	3.79	1.04	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	-	786	1263	-	-	-	-
NEW JERSEY														
Canoe Brook	EVAP													
	DEP													
	WIND	-	-	-	-	-	-	-	-	159	-	-	-	-
Pleasantville	EVAP	-	-	-	-	-	-	-	5.14	-	B1.75	-	-	-
	DEP	-	-	-	-	-	-	-	-.50	-	-.82	-	-	-
	WIND	-	-	-	-	-	-	-	-.50	-	-.82	-	-	-
Runyon	EVAP	-	-	-	-	-	-	-	-	2.13	1.40	-	-	-
	DEP	-	-	-	-	-	-	-	-	-1.99	-1.22	-	-	-
	WIND	-	-	-	-	-	-	-	-	243	484	799	-	-
NEW MEXICO														
Agr. College	EVAP	3.80	4.73	9.15	11.59	13.25	14.37	10.99	11.43	8.63	B6.81	-	4.00	-
	DEP	+.82	+.29	+1.53	+1.71	+1.38	+1.50	-.88	+1.19	+.43	+.65	-	+1.34	-
	WIND	1746	1255	2620	2318	-	1806	1371	1144	1083	-	-	1029	-
Alamogordo Dam	EVAP	5.76	5.18	10.24	11.99	15.31	15.58	B11.88	12.02	B8.66	8.30	6.59	4.78	116.29
	DEP	+2.74	+.74	+2.20	+1.59	+2.61	+1.41	-1.61	+.13	-1.30	+1.28	+2.09	+1.34	+13.22
	WIND	3428	2216	4088	3499	3711	2957	1726	1456	1652	1328	2175	1930	30,166
Bosque Del Apache	EVAP	4.13	4.76	9.92	12.29	14.91	14.55	10.95	11.38	7.97	6.51	6.04	3.91	107.32
	DEP													
	WIND	2050	1150	3055	2325	2630	1680	1075	790	645	370	770	1070	17,610
Caballo Dam	EVAP	5.12	5.51	10.74	13.47	16.58	18.20	11.42	13.49	11.16	8.12	5.72	4.25	123.78
	DEP	+1.93	+.16	+1.88	+1.03	+.94	+1.24	-2.48	+1.33	+.82	+.80	+.75	+1.18	+9.52
	WIND	3548	2316	3801	3648	3994	3594	2615	2726	2782	1841	2288	1971	35,124
Conchas Dam	EVAP	-	-	-	10.76	12.43	13.71	B10.53	9.66	7.26	7.59	-	-	-
	DEP	-	-	-	+.95	+.88	+.29	-2.32	-2.14	-2.39	+.64	-	-	-
	WIND	6533	3983	7106	5996	6160	5438	4116	3404	3898	3926	3398	3612	57,570
Eagle Nest	EVAP	-	-	-	-	B10.15	10.30	6.31	5.88	5.96	6.00	-	-	-
	DEP	-	-	-	-	+3.01	+1.77	-1.21	-.96	+.59	+1.62	-	-	-
	WIND	3660	1725	-	-	2846	3627	1086	814	1253	1487	1708	1659	-
Elephant Butte	EVAP	5.42	5.28	10.61	13.64	B16.64	19.08	12.57	12.94	11.18	8.64	5.91	B4.21	126.12
	DEP	+2.44	+.67	+2.54	+2.61	+2.76	+3.88	-.45	+2.16	+1.88	+1.20	+1.42	+1.18	+22.29
	WIND	3759	2170	4399	4033	-	3838	2919	2168	2585	2301	2439	2225	-
El Vado Dam	EVAP	-	-	-	-	-	11.16	8.33	8.25	-	-	-	-	-
	DEP	-	-	-	-	-	+1.08	-1.02	+.39	-	-	-	-	-
	WIND	488	556	2001	1400	1260	950	850	716	643	720	825	-	-
Farmington 2	EVAP	-	-	4.79	8.03	B9.39	9.43	8.54	7.56	B4.90	4.55	-	-	-
	DEP	-	-	+1.04	+2.11	+2.18	+1.80	+1.18	+1.56	+.06	+.93	-	-	-
	WIND	1223	924	1805	1983	1609	1160	744	385	340	422	772	1039	12,406

See reference notes at end of table.

Table 7 - Continued

TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1950

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
NEW MEXICO (Cont'd.)														
Florida	EVAP	B3.32	-	B7.43	B8.68	-	B14.48	B9.72	-	-	5.39	6.61	B3.64	-
	DEP	-	-	+.69	-.77	-	+.42	-2.52	-	-	-.74	+2.23	+.30	-
	WIND	-	1744	2705	1784	-	-	936	-	-	153	-	1644	-
Jornada Exp. Range	EVAP	2.51	3.40	6.99	9.10	11.13	11.66	8.76	B8.98	7.04	4.82	3.27	2.55	80.21
	DEP	-.01	-.79	-.29	-1.12	-1.93	-2.77	-3.93	-1.70	-1.52	+1.28	-.40	+.23	-15.52
	WIND	751	381	1212	1133	1283	1371	879	593	535	207	343	283	8971
Narrows	EVAP	-	-	-	11.98	B14.54	16.27	11.05	11.76	10.06	7.50	4.78	3.54	-
	DEP													
	WIND	-	-	2762	2558	-	2500	1867	1679	1828	1088	1278	1099	-
Portales 7WNW	EVAP	4.20	4.39	8.90	9.44	11.01	B11.54	B8.33	B9.41	5.81	5.52	4.95	3.37	86.87
	DEP	+1.43	+.73	+1.52	+.35	+.32	-1.03	-3.81	-2.14	-2.55	-.63	+.59	+.40	-4.82
	WIND	3293	2304	4273	3152	3151	2359	846	129	148	-	1101	2455	-
Roswell	EVAP	-	B4.43											
	DEP	-	+.84	Closed March 21, 1950										
	WIND	-	1244											
Roswell WBAP	EVAP				B11.68	-	16.45	12.11	12.63	7.92	7.22	4.80	4.82	-
	DEP	Opened March 21, 1950.			+3.76	-	+6.04	+2.79	+4.40	+1.52	+2.29	+1.07	+2.08	-
	WIND				3585	-	3142	2668	2155	1718	1470	1756	2137	-
Santa Fe 2SE	EVAP	-	-	-	-	B9.82	B10.20	-	-	-	-	-	-	-
	DEP													
	WIND	-	-	-	2905	2483	2432	-	-	-	-	-	1543	-
Santa Rita (f)	EVAP	-	-	-	-	B12.53	12.76	8.70	B10.23	9.59	8.82	B5.89	4.13	-
	DEP													
	WIND													
Tucumcari 3NE (c)	EVAP	-	-	-	B9.39	11.59	12.49	B9.44	8.50	5.96	6.63	-	-	-
	DEP	-	-	-	+1.68	+2.30	+1.79	-1.45	-1.09	-1.47	-	-	-	-
	WIND	4424	2732	4808	4362	4725	4307	2840	2059	2477	2577	2639	2176	40,126
NEW YORK														
Alcove Dam	EVAP	-	-	-	-	B4.29	B5.13	4.46	3.66	-	-	-	-	-
	DEP	-	-	-	-	-.20	+.30	-1.45	-.99	-	-	-	-	-
	WIND	-	-	-	-	-	968	-	690	-	-	-	-	-
Boonville	EVAP	-	-	-	-	5.05	5.99	6.10	4.98	B2.80	2.58	-	-	-
	DEP													
	WIND	-	-	-	-	3691	2737	2417	1542	1735	2807	-	-	-
Ithaca Cornell Univ.	EVAP	-	-	-	-	B4.35	5.26	B5.05	5.03	2.62	2.40	-	-	-
	DEP	-	-	-	-	+.06	+.10	-.82	+.09	-.73	+.26	-	-	-
	WIND	-	-	-	-	3733	2577	2295	2075	2170	3312	-	-	-
New York Central Park	EVAP	-	-	-	-	4.20	7.70	7.25	B5.36	3.21	2.87	-	-	-
	DEP	-	-	-	-	-.84	+1.97	+.37	-.37	-	-.27	-	-	-
	WIND	-	-	-	-	805	591	353	418	553	569	-	-	-
NORTH CAROLINA														
Beetree Dam	EVAP	1.30	1.77	2.00	4.55	5.32	4.77	4.59	4.73	2.86	3.05	1.76	.84	37.54
	DEP	+.20	+.32	-.75	+.31	-.22	-.90	-.71	-.25	-1.08	-.02	-.25	-.31	-3.66
	WIND	607	852	1364	915	388	-	194	278	398	636	995	917	-
Chapel Hill 2W	EVAP	B1.48	B1.63	3.09	B5.41	B5.78	B6.52	B5.36	B5.51	4.05	B2.99	B2.34	-	-
	DEP	+.21	-.01	+.01	+1.36	+.93	+.97	-.13	+.65	+.12	+.39	+.79	-	-
	WIND	675	515	990	-	1132	888	902	514	690	715	1234	-	-
Coweeta Exp. Sta. (g)	EVAP	.66	1.78	B3.00	3.83	3.31	3.59	3.96	3.20	2.34	2.65	1.82	.82	B30.96
	DEP													
	WIND	956	899	1262	1102	516	469	378	354	288	416	728	666	8034
Lake Michie (h)	EVAP	2.25	1.69	2.48	3.73	4.36	5.31	5.19	B6.53	5.08	B3.52	2.83	2.51	B45.48
	DEP	+.82	+.06	-.20	-.17	-1.03	-.96	-1.17	+.64	+.07	-.48	+.01	+.65	-1.76
	WIND	1598	1510	2210	1810	1272	1108	1127	1035	1308	1510	1150	1245	16,893
Maysville 6SW	EVAP	2.07	2.97	4.04	6.02	B6.22	B7.11	B6.62	6.52	B4.42	B3.35	2.61	1.44	B53.39
	DEP													
	WIND	1501	1455	2485	2036	1511	1291	1269	882	1104	992	1162	1196	16,884
Murphy	EVAP	1.00	1.85	3.02	4.49	4.69	5.53	4.73	4.51	3.40	2.68	1.83	.97	38.70
	DEP	-.03	+.36	+.02	+.17	-.85	-.35	-1.01	-.56	-.70	-.21	+.19	+.07	-2.90
	WIND	284	463	768	623	304	172	62	55	123	147	299	234	3534
NORTH DAKOTA														
Dickinson Exp. Sta. (c)	EVAP	-	-	-	B2.40	B4.61	6.54	6.72	6.57	4.43	-	-	-	-
	DEP	-	-	-	-1.29	-1.00	+.45	-1.25	-.68	-.55	-	-	-	-
	WIND	-	-	-	5275	4701	4485	3285	3155	2895	-	-	-	-
Edgeley Exp. Farm	EVAP	-	-	-	-	-	-	-	-	B4.43	-	-	-	-
	DEP	-	-	-	-	-	-	-	-	-	-	-	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	-	-	-
Mandan Exp. Sta. (c)	EVAP	-	-	-	2.32	4.92	6.56	5.98	5.83	4.00	-	-	-	-
	DEP	-	-	-	-1.30	-.42	+.63	-1.35	-.74	-.51	-	-	-	-
	WIND	-	-	-	4502	4789	4251	2927	3004	3151	-	-	-	-
Riverdale	EVAP	-	-	-	-	-	11.09	8.77	7.52	6.61	B4.05	-	-	-
	DEP													
	WIND	-	-	-	-	-	5303	3371	3208	3538	3965	-	-	-
OHIO														
Charles Mill Dam	EVAP	-	-	-	B2.62	5.44	6.05	6.80	5.61	B3.16	2.56	-	-	-
	DEP	-	-	-	-1.09	+.54	+.01	+.17	-.46	-.35	-.28	-	-	-
	WIND	-	-	-	2521	1285	1038	883	565	551	781	-	-	-
Columbus Ohio State Univ.	EVAP	-	-	-	B5.52	3.80	B4.01	B3.91	B3.85	2.06	1.63	-	-	-
	DEP	-	-	-	+2.20	-.65	-1.11	-1.80	-.95	-1.46	-.47	-	-	-
	WIND	-	-	-	1089	-	531	432	300	233	360	-	-	-
Dayton	EVAP	-	-	-	B3.75	5.25	5.79	6.00	4.65	2.95	2.27	-	-	-
	DEP	-	-	-	-.15	-.12	-.63	-.82	-1.30	-1.39	-.20	-	-	-
	WIND	-	-	-	2300	1500	1667	1537	1372	1214	1368	-	-	-
Senecaville Dam	EVAP	-	-	-	3.63	4.60	5.67	5.61	B5.23	3.37	2.94	-	-	-
	DEP	-	-	-	-.63	-.89	-.58	-.94	-.61	-1.21	+.08	-	-	-
	WIND	-	-	-	2981	1836	1601	1464	1185	1335	1486	-	-	-
Wooster Exp. Farm	EVAP	-	-	-	-	B5.37	B6.31	7.23	5.98	3.36	2.52	-	-	-
	DEP	-	-	-	-	+.90	+.88	+1.03	+.62	-.42	+.38	-	-	-
	WIND	-	-	-	-	3863	3662	3631	2689	2860	3480	-	-	-
OKLAHOMA														
Altus Dam	EVAP	2.32	3.27	6.63	8.09	8.10	11.39	8.05	9.61	6.14	7.52	4.85	2.66	78.63
	DEP													
	WIND	2967	2335	3395	3227	2452	2543	1707	1524	1513	2046	2674	2052	28,435

See reference notes at end of table.

Table 7 - Continued

TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1950

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
OKLAHOMA (Cont'd.)														
Canton Dam	EVAP	-	B4.27	9.11	9.72	9.27	12.83	B8.84	B7.66	B6.02	7.29	B4.90	-	-
	DEP													
	WIND	-	3563	5677	-	4446	4342	2526	2247	2000	2563	3006	-	
Fort Gibson Dam	EVAP	B2.40	B2.41	4.38	B6.14	B7.72	7.72	B5.09	-	3.40	4.99	3.10	1.39	-
	DEP													
	WIND	1824	1422	2089	2309	1517	1496	1003	-	680	1452	1623	1253	-
Fort Supply Dam	EVAP	-	B3.98	-	B9.40	10.73	B10.87	-	B9.31	B6.03	6.04	4.04	B2.07	-
	DEP	-	-	-	-	+1.21	+1.08	-	-1.81	-2.87	+.08	-	-	-
	WIND	-	4452	-	-	5820	5474	-	3083	3125	4094	3500	3049	-
Goodwell	EVAP	-	-	-	-	B14.55	13.30	B10.91	B9.41	B5.63	B7.44	-	-	-
	DEP													
	WIND	-	-	-	-	5434	4988	3873	2676	-	-	-	-	-
Grand River Dam	EVAP	B2.03	B2.85	5.45	7.72	B8.51	10.87	B6.27	B7.09	B4.56	5.98	B3.94	B3.05	68.32
	DEP	-	-	+1.02	+1.38	+1.30	+2.48	-3.28	-1.89	-2.22	+1.74	+1.19	+1.03	-
	WIND	4141	2861	3746	4234	2589	2964	1988	1618	1628	2302	2789	2557	33,417
Great Salt Plains Dam	EVAP	-	B3.85	7.88	8.09	9.15	13.14	B9.03	B8.25	B6.54	5.99	3.44	1.96	-
	DEP													
	WIND	-	3220	5090	4930	4160	3735	3005	2420	2113	2433	2846	2174	-
Heyburn Dam 4E	EVAP	B1.02	B2.86	B4.34	7.70	B6.48	8.01	-	B5.74	B3.70	B4.58	B2.65	-	-
	DEP													
	WIND	2098	-	2936	2749	1527	1224	-	1633	1679	2135	2799	-	-
Hulah Dam	EVAP	B1.70	B2.86	5.43	B8.34	B7.13	B9.71	B8.10	B5.97	4.63	5.16	3.41	-	-
	DEP													
	WIND	2421	1981	3671	-	-	1811	1099	656	726	925	1441	-	-
Lawton 2N (c)	EVAP	-	-	B5.42	6.16	B5.48	B7.21	B5.52	6.39	-	-	-	-	-
	DEP	-	-	+.98	+.66	-1.05	-.87	-3.86	-2.78	-	-	-	-	-
	WIND	-	-	3880	-	3354	3266	2528	1918	-	-	-	-	-
Norman University	EVAP	-	-	B5.15	6.59	B6.90	7.95	B5.80	6.63	4.41	4.68	B3.21	-	-
	DEP	-	-	+.02	+1.15	+.30	+.41	-3.11	-1.76	-2.29	+.02	+.79	-	-
	WIND	-	-	2470	2220	1845	1811	1163	890	1009	1394	-	-	-
Stillwater	EVAP	-	-	B5.70	9.18	8.14	9.84	6.41	7.56	5.43	6.59	-	-	-
	DEP													
	WIND	-	-	5225	5053	3295	2871	1792	1614	1942	2143	-	-	-
Tenkiller Ferry Dam	EVAP	-	B2.63	5.93	B6.66	B5.36	7.60	B4.85	5.65	B3.91	4.15	2.57	1.37	-
	DEP													
	WIND	-	1563	2418	-	1109	776	370	424	389	448	1002	1158	-
Tipton	EVAP	B2.17	B3.85	7.03	8.56	B8.10	B10.71	6.48	B8.30	6.00	7.87	5.00	-	-
	DEP	-	-	+1.34	+1.17	-1.50	-.55	-6.12	-3.54	-3.46	+1.73	+1.87	-	-
	WIND													
Wister Dam	EVAP	-	B2.63	5.52	B6.17	5.52	7.93	B6.63	B5.94	B3.93	B3.68	B2.89	B1.58	-
	DEP													
	WIND	-	1508	2762	2371	-	1296	1300	1070	980	704	1458	1340	-
Woodward Field Sta. (c)	EVAP	-	-	-	B7.00	9.06	B9.28	B7.07	6.90	B4.66	-	-	-	-
	DEP	-	-	-	+.58	+1.71	-.20	-3.49	-2.93	-2.74	-	-	-	-
	WIND	-	-	-	5513	4946	6158	3908	3122	2992	-	-	-	-
OREGON														
Cottage Grove Dam	EVAP	-	-	-	-	-	4.88	8.48	7.83	-	-	-	-	-
	DEP	-	-	-	-	-	-.67	+.26	+1.04	-	-	-	-	-
	WIND	-	-	2178	1307	1408	1039	1328	1045	-	-	-	-	-
Dorena Dam	EVAP	-	-	-	-	B6.31	5.07	9.00	8.58	4.95	-	-	-	-
	DEP													
	WIND	-	-	-	-	2210	1850	2468	2192	1830	-	-	-	-
Fern Ridge Dam	EVAP	-	-	-	-	B6.50	6.05	9.73	8.39	4.92	-	-	-	-
	DEP	-	-	-	-	+1.13	+.19	+1.15	+1.13	-.24	-	-	-	-
	WIND	-	-	-	-	-	1735	1511	1800	1585	-	-	-	-
Hermiston 2S (c)	EVAP	-	-	-	4.07	6.28	5.46	8.18	6.66	4.37	-	-	14.50	-
	DEP													
	WIND	-	1501	3087	3397	3696	2502	2871	2043	1342	1494	1701	-	-
Malheur Exp. Sta.	EVAP	-	-	-	5.48	7.41	7.56	10.53	8.20	5.11	2.92	-	-	-
	DEP													
	WIND	-	-	-	2038	1556	1049	885	517	465	672	-	-	-
Medford Exp. Sta.	EVAP	-	-	1.82	3.65	6.27	5.94	9.02	7.59	4.03	B1.22	.84	B.42	-
	DEP	-	-	-.58	-.21	+.64	-.82	+.20	+.16	-.69	-.75	+.17	-.09	-
	WIND	-	343	646	515	387	361	421	298	147	184	390	391	-
Odell Lake-Land	EVAP	-	-	-	-	-	3.17	5.75	3.83	2.14	B.27	-	-	-
	DEP													
	WIND	-	-	-	-	-	650	437	505	565	-	-	-	-
Odell Lake-Water (i)	EVAP	-	-	-	-	-	3.53	4.69	4.48	4.21	B1.82	-	-	-
	DEP													
	WIND	-	-	-	-	-	1055	905	765	1032	-	-	-	-
Warm Springs	EVAP	-	-	-	B5.57	8.05	B7.74	-	9.26	5.70	3.68	-	-	-
	DEP	-	-	-	+.34	+.09	-1.33	-	-1.61	-1.01	+.07	-	-	-
	WIND	-	-	2232	2501	2470	2209	2343	1971	1684	2635	B1855	[illegible]	-
Wickiup Dam	EVAP	-	-	-	-	B7.62	B7.86	10.46	8.39	B5.27	-	-		-
	DEP	-	-	-	-	+1.85	+1.36	+1.33	+1.15	-.06	-	-		-
	WIND	-	-	2590	3070	2420	2035	1975	1610	1150	2390	2680	2270	-
PENNSYLVANIA														
Confluence Dam 1SW	EVAP	-	-	-	-	-	-	4.28	4.83	B2.74	1.88	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	1067	1040	983	983	-	-	
Ford City Dam 4S	EVAP	-	-	-	-	-	-	4.72	B4.09	B2.76	B1.78	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	816	-	1067	1171	-	-	-
Hawley 1S Wallen	EVAP	-	-	-	-	-	-	B5.09	4.63	2.51	2.36	-	-	-
	DEP	-	-	-	-	-	-	-1.44	-1.02	-1.54	-.13	-	-	-
	WIND	-	-	-	-	-	-	1796	1710	1542	2000	-	-	-
Jamestown 2NW	EVAP	-	-	-	-	-	-	5.12	4.57	2.60	-	-	-	-
	DEP	-	-	-	-	-	-	-.70	-.12	-.76	-	-	-	-
	WIND	-	-	-	-	-	-	897	779	1035	-	-	-	-
Neffs Mill 4NE	EVAP	-	-	-	-	-	-	B5.12	B4.27	2.30	B2.00	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	776	543	659	-	-	-	-

See reference notes at end of table.

Table 7-Continued

TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1950

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
SOUTH CAROLINA														
Clemson College	EVAP	B1.29	2.54	3.97	B5.73	6.15	B7.11	B6.10	4.97	B4.32	B3.81	2.43	B1.45	B49.87
	DEP													
	WIND	1246	1602	2170	1987	1203	1107	762	441	759	688	805	1058	13,828
Union 7SW	EVAP	1.38	B2.06	3.23	B5.38	5.95	6.51	5.67	6.49	4.00	3.47	2.12	1.39	B47.65
	DEP													
	WIND	1461	1539	1978	1561	1064	1123	1036	862	1197	1321	1031	1483	15,656
SOUTH DAKOTA														
Angostura Dam	EVAP	-	-	-	-	-	-	-	-	B5.46	B5.77	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	-	-	-	2732	-	-	-
Bixby Dam	EVAP	-	-	-	-	-	-	-	-	8.00	4.47	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	-	-	3013	3070	-	-	-
Deerfield Dam	EVAP	-	-	-	-	-	9.18	B7.97	8.63	5.54	B5.96	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	-	3508	3674	5545	-	-	-
Newell 3NW (c)	EVAP	-	-	-	-	4.64	6.42	7.35	6.57	4.61	-	-	-	-
	DEP	-	-	-	-	-.84	-.03	-.47	-.29	-.34	-	-	-	-
	WIND	-	-	-	-	4576	3559	3015	2655	2667	-	-	-	-
Redfield 6E	EVAP	-	-	-	-	-	-	8.01	7.10	7.15	B4.16	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	2436	2545	3191	3776	-	-	-
Shadehill Dam	EVAP	-	-	-	-	-	-	-	-	B6.90	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	-	-	3440	-	-	-	-
TENNESSEE														
Center Hill Dam	EVAP	B1.50	B1.91	3.89	4.79	B5.55	B6.11	B6.13	5.19	3.76	3.64	-	-	-
	DEP													
	WIND	1550	1341	1549	1229	782	566	365	478	621	490	-	-	-
Jefferson City	EVAP	1.25	1.52	2.79	4.17	4.78	5.20	5.15	-	3.62	2.68	-	-	-
	DEP	+.20	-.10	-.38	-.34	-.92	-1.37	-1.16	-	-.64	-.03	-	-	-
	WIND	549	725	1008	857	359	412	436	-	368	330	-	-	-
Neptune	EVAP	2.66	B1.58	B3.01	4.27	B4.74	B5.87	5.51	B4.11	2.88	2.84	-	-	-
	DEP	-	-.73	-.30	-.43	-.85	-.57	-1.26	-1.83	-1.90	-.42	-	-	-
	WIND	1354	671	1485	1384	693	665	663	698	780	840	-	-	-
Paris	EVAP	1.66	1.83	3.72	4.89	4.97	6.67	5.79	-	B3.55	3.24	-	-	-
	DEP													
	WIND	1483	969	1587	1347	410	492	277	-	295	279	-	-	-
TEXAS														
Austin WB Airport	EVAP	3.15	B2.39	B6.22	-	B7.64	8.50	10.43	11.59	8.15	6.52	B5.43	B3.90	-
	DEP	+.81	-.72	+1.25	-	+.57	+.31	+1.33	+2.51	+1.47	+1.32	+2.23	+1.52	-
	WIND	3056	2205	-	-	-	2301	2718	2423	2082	1638	2907	2424	-
Balmorhea WB Pan	EVAP	-	-	-	6.80	-	-	-	-	-	-	-	-	-
	DEP				-1.57									
	WIND	-	-	-	1847	-	-	-	-	-	-	-	-	-
Balmorhea Exp. Pan (c)	EVAP	3.08	3.27	6.00	-	10.09	10.13	7.17	8.85	5.54	5.30	-	-	-
	DEP	+1.19	+.47	+1.04		+2.32	+1.99	-.80	+1.17	+.20	+1.34			
	WIND	1255	1011	2073	-	1585	1437	985	1568	1263	1097	-	-	-
Beaumont Exp. Farm	EVAP	2.42	3.08	B5 18	4.78	6.96	6.57	6.04	6.21	4.35	-		-	-
	DEP													
	WIND	-	-	-	-	-	-	-	-	-	1464	2433	-	-
Beeville (c)	EVAP	3.13	3.23	5.12	7.85	7.24	7.20	7.23	8.39	5.97	5.34	4.15	-	-
	DEP	+.61	+.64	+.56	+2.89	+.94	+.47	+.02	+1.26	+.68	+.95	+.85	-	-
	WIND	5593	4556	6400	6508	5828	3802	4698	4072	3313	-	-	-	-
Buchanan Dam	EVAP	2.72	2.92	-	4.28	5.45	7.46	9.90	10.20	6.05	7.05	-	-	-
	DEP													
	WIND	-	1579	-	2377	2014	2137	2604	2013	1580	1566	-	-	-
College Station (c)	EVAP	-	2.07	4.34	B3.94	5.37	B6.01	6.84	7.65	5.12	4.48	3.87	-	-
	DEP	-	-.38	+1.29	-.04	+.18	+.06	-.05	+1.09	+.36	+.64	+1.14	-	-
	WIND	-	3097	4632	3638	3242	2441	2463	2369	2187	2215	4299	-	-
Del Rio WB City	EVAP	2.68	2.96	7.38	7.24	8.96	9.62	12.03	12.29	8.39	6.99	5.46	3.65	87.65
	DEP													
	WIND	1341	1315	1932	2013	2062	1950	2045	1828	1591	1416	1380	1058	19,931
Denison Dam	EVAP	-	B2.97	6.80	7.77	8.67	9.69	7.30	8.73	-	6.61	5.17	2.96	-
	DEP	-	-.04	+1.50	+.62	+.90	+.19	-2.81	-1.56	-	+1.45	+1.42	+.54	-
	WIND	3876	2708	3959	3797	2270	2570	1763	1475	-	2885	4106	3025	-
Dilley	EVAP	-	-	6.63	6.02	B8.61	B9.01	B10.70	10.68	8.31	6.15	4.53	3.10	-
	DEP	-	-	+.56	-1.47	+.35	-.82	-.02	+.16	+.68	+.30	+.89	+.48	-
	WIND	-	-	1425	1286	-	794	913	731	758	581	981	666	-
Fort Stockton	EVAP	4.46	4.69	10.55	10.75	B12.17	14.00	11.42	12.96	7.97	8.19	6.37	5.53	109.06
	DEP	+.95	-.25	-	-.29	-.55	+.29	-1.49	+1.46	-1.29	+1.60	+1.74	+1.76	-
	WIND	1546	1729	3154	3025	3120	-	2809	2734	2082	2238	-	1755	-
Grandfalls	EVAP	-	4.56	11.90	12.11	-	-	-	-	-	-	-	-	-
	DEP	-	-.49	+3.23	+.09	-	-	-	-	-	-	-	-	-
	WIND													
Iowa Park Exp. Sta. (c)	EVAP	1.51	2.16	4.58	4.89	-	6.49	5.95	5.19	3.96	4.14	3.04	1.59	-
	DEP													
	WIND	2749	2525	4400	3905	-	2658	1948	1374	1432	1701	2419	1735	-
Lake Kickapoo	EVAP	-	-	-	B11.70	B10.88	B13.66	B9.96	B9.32	6.42	7.32	B6.12	-	-
	DEP													
	WIND	-	-	-	6477	5038	5362	4277	3220	2913	3566	4345	-	-
Laredo WB Airport	EVAP	4.32	4.90	8.53	9.58	12.40	12.91	16.96	14.77	12.19	9.90	6.95	4.93	118.34
	DEP													
	WIND	2171	2067	2845	3455	3740	3388	4607	3111	2817	2357	2815	1979	35,352
Mansfield Dam	EVAP	2.00	B2.73	5.55	B4.33	5.27	6.92	B10.41	-	6.36	B6.53	-	-	-
	DEP													
	WIND	2172	1706	2744	2493	2182	2085	2390	-	1798	1462	-	-	-

See reference notes at end of table.

Table 7-Continued

TOTAL EVAPORATION AND WIND MOVEMENT

YEAR 1950

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
TEXAS (Cont'd.)														
Red Bluff Dam	EVAP	-	-	-	-	-	-	-	-	-	B5.60	4.36	-	-
	DEP	-	-	-	-	-	-	-	-	-	-.73	-.27	-	-
	WIND	-	-	-	-	-	-	-	-	-	-	2485	-	-
Spur (j)	EVAP	2.46	3.04	6.04	B7.11	B5.88	7.85	6.39	7.69	4.13	4.71	4.05	B3.00	62.35
	DEP	-	+1.33	+.63	-1.69	-.62	-1.60	-.33	-1.88	+.83	+.74	+.99	-1.10	
	WIND	5101	4905	7786	7478	5978	5927	4159	3764	3534	3432	3945	2890	58,899
Weslaco Exp. Sta. (c)	EVAP	2.75	3.08	-	-	-	-	-	-	-	-	-	3.07	-
	DEP													
	WIND	2776	1830	-	-	-	-	-	-	-	-	-	1532	-
William Harris Res.	EVAP	2.65	2.79	5.05	5.84	7.37	B7.71	6.92	7.76	5.30	-	3.98	3.01	-
	DEP													
	WIND	3074	1942	3194	2864	-	-	1419	1224	1176	-	1910	1879	-
(k)														
Winter Haven Exp. Sta.	EVAP	-	-	-	-	-	-	-	-	4.96	3.91	2.78	2.13	-
	DEP													
	WIND	-	-	-	-	-	-	-	-	956	800	639	639	-
Ysleta	EVAP	4.73	4.93	10.86	12.52	13.47	15.40	B10.84	11.71	7.93	6.95	4.88	4.33	108.55
	DEP	+1.61	+.31	+2.41	+1.43	+.07	+1.70	+1.59	+1.07	-.60	+.76	+1.02	+1.34	+9.13
	WIND	1649	1285	3056	2520	2143	1868	1441	1013	941	759	1241	1184	19,100
UTAH														
Bear River	EVAP	-	-	-	B4.62	6.40	8.92	10.63	9.26	5.64	-	-	-	-
	DEP	-	-	-	-	-2.41	-.59	-1.35	-1.21	-1.16	-	-	-	-
	WIND	2072	793	-	2144	1855	1497	1455	1370	1055	1060	1075	-	-
East Portal	EVAP	-	-	-	-	-	8.37	6.96	B7.07	4.23	3.74	-	-	-
	DEP													
	WIND	-	-	-	-	-	2109	1374	1513	1789	1981	-	-	-
Ferron	EVAP	-	-	-	B6.24	B6.40	10.37	7.14	8.35	6.04	B5.30	-	-	-
	DEP													
	WIND	1911	-	-	-	-	1442	572	-	934	-	-	-	-
Fish Lake	EVAP	-	-	-	-	-	-	-	-	-	4.99	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	-	-	-	1999	-	-	-
Fort Duchesne	EVAP	-	-	-	-	B8.23	7.72	B7.15	B6.81	-	B3.95	-	-	-
	DEP	-	-	-	-	+.52	+.12	-1.48	-.25	-	-	-	-	-
	WIND	380	266	1987	-	1880	1151	924	1060	-	-	-	-	-
Green River	EVAP	-	-	-	-	B10.87	-	B10.19	B8.04	-	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	752	702	-	-	-	-	-
Logan USAC	EVAP	-	-	-	-	-	-	-	-	B4.89	4.40	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	-	-	-	1450	-	-	-
Moon Lake	EVAP	-	-	-	-	-	-	B6.57	7.98	-	-	-	-	-
	DEP	-	-	-	-	-	-	-1.53	+1.07	-	-	-	-	-
	WIND	-	-	-	-	-	-	1794	1780	1523	-	-	-	-
Piute Dam	EVAP	-	-	-	-	8.33	12.19	B10.30	9.73	8.41	6.56	-	-	-
	DEP	-	-	-	-	-1.02	+.95	-.46	+.35	+.76	+1.72	-	-	-
	WIND	-	-	-	-	2192	2241	1655	1590	1495	1951	-	-	-
Provo Airport	EVAP	-	-	B3.60	B6.78	7.41	B9.56	B8.51	B9.71	6.28	5.02	-	-	-
	DEP	-	-	-	-1.37	+1.25	+2.67	+1.25	-	-	+2.63	-	-	-
	WIND	-	-	1706	-	2452	-	-	B1143	1269	1176	-	-	-
Scofield Dam	EVAP	-	-	-	-	-	9.22	7.46	8.30	4.60	4.74	-	-	-
	DEP													
	WIND	-	-	-	-	-	2453	1772	1895	1284	1705	1818	-	-
Utah Lake Lehi	EVAP	-	-	3.19	7.01	7.93	11.39	10.12	10.40	6.44	5.50	1.30	3.48	-
	DEP	-	-	-.01	+1.16	-.81	+1.24	-.93	+.68	-.74	+1.49	-.12	-	-
	WIND	2235	1940	2590	3445	2913	2857	2082	1917	1939	2224	1679	1787	27,608
Vernal AP	EVAP	-	-	-	6.22	B6.38	8.62	6.88	B6.40	4.60	B3.75	-	-	-
	DEP													
	WIND	-	-	-	2361	1967	1753	647	444	225	379	867	657	-
VIRGINIA														
Holland 1E	EVAP	-	-	-	-	B5.44	7.60	B6.39	5.81	-	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	1735	1302	-	-	-	-	-	-
WASHINGTON														
Bumping Lake	EVAP	-	-	-	-	-	B3.42	6.32	5.61	4.22	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	1495	1275	933	-	-	-	-
Lake Kachess	EVAP	-	-	-	-	-	4.21	6.50	5.88	4.45	-	-	-	-
	DEP	-	-	-	-	-	-.57	+.09	+.84	+1.74	-	-	-	-
	WIND	-	-	-	-	-	1601	1740	1312	1109	-	-	-	-
Lind 3NE (1)	EVAP	-	-	-	5.57	8.62	7.57	12.13	11.31	7.47	-	-	-	-
	DEP	-	-	-	+.82	+1.56	-.29	+1.33	+1.74	+1.63	-	-	-	-
	WIND	2867	1884	3596	3360	2080	1762	1839	1601	1575	2105	2186	1951	26,806
Moses Lake	EVAP	-	-	-	B6.18	9.06	8.00	B10.67	9.52	B7.85	B2.18	-	-	-
	DEP													
	WIND	1830	1068	-	3060	2432	1984	1308	920	-	-	1499	-	-
Othello 5E	EVAP	-	-	-	5.09	8.84	7.14	12.67	11.40	7.98	2.00	-	-	-
	DEP	-	-	-	-.44	+1.29	-1.86	+.06	+.80	+1.10	-1.20	-	-	-
	WIND	-	1768	-	3419	2952	1804	2491	2376	2092	1956	2071	1743	-
Prosser (1)	EVAP	-	-	-	B4.23	6.04	5.01	7.48	5.85	4.25	1.34	-	-	-
	DEP	-	-	-	+.08	+.49	-1.59	-.40	-.85	+.18	-1.05	-	-	-
	WIND	2449	1372	2362	2880	2336	1608	1466	1210	986	1490	1487	1123	20,769
Quincy 4S	EVAP	-	-	-	5.29	8.87	7.35	11.51	B10.30	6.74	1.89	-	-	-
	DEP	-	-	-	-.62	+.48	-2.55	-2.17	-1.18	-.68	-1.65	-	-	-
	WIND	2888	1276	-	3220	3519	2076	2841	-	1677	1576	-	1657	-
Rimrock Tieton	EVAP	-	-	-	-	B6.95	5.99	9.69	8.21	4.90	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	2166	2631	1920	1311	-	-	-	-
Seattle Maple	EVAP	-	-	1.18	B2.64	4.12	5.17	6.87	5.85	B3.89	-	-	-	-
	DEP	-	-	-.58	-.27	-.28	+.40	+.59	+.88	+.64	-	-	-	-
	WIND													

See reference notes at end of table.

TOTAL EVAPORATION AND WIND MOVEMENT

Table 7 - Continued

YEAR 1950

State and Station		January	February	March	April	May	June	July	August	September	October	November	December	Annual
WASHINGTON (Cont'd.)														
Walla Walla 3W	EVAP	-	-	-	B5.11	7.51	B6.76	B9.57	B8.23	B5.23	B2.46	-	-	-
	DEP	-	-	-	+.81	+1.33	-.82	-.97	-.93	-.04	-.09	-	-	-
	WIND	-	-	-	-	1760	1086	1093	865	674	1278	-	-	-
Wind River	EVAP	-	-	-	B2.65	4.97	4.13	6.40	B5.69	3.81	B1.24	-	-	-
	DEP	-	-	-	-.55	+.11	-1.42	-.67	-.13	+.31	-.33	-	-	-
	WIND	1108	754	1127	852	1108	689	740	592	467	366	978	886	9667
WEST VIRGINIA														
Clarksburg No. 1	EVAP	-	-	-	3.10	3.33	B4.49	4.51	B3.77	2.34	1.76	-	-	-
	DEP	-	-	-	-.64	-1.56	-1.11	-.54	-1.08	-1.24	-.39	-	-	-
	WIND	-	-	-	3141	1373	1628	1429	1279	1221	1154	-	-	-
Hogsett Gallipolis Dam	EVAP	-	-	-	4.05	4.70	5.47	5.52	4.95	-	-	-	-	-
	DEP													
	WIND	-	-	-	2282	1384	1336	1288	1027	1141	1276	-	-	-
Wardensville RM Farm	EVAP	-	-	-	B4.23	-	6.31	B4.60	B5.17	B3.00	2.10	-	-	-
	DEP	-	-	-	-	-	+.43	-1.82	-.51	-1.33	-.97	-	-	-
	WIND	-	-	-	-	922	811	477	501	265	369	-	-	-
WISCONSIN														
Marshfield Exp. Farm	EVAP	-	-	-	-	-	B6.31	-	5.45	-	2.64	-	-	-
	DEP	-	-	-	-	-	+.64	-	-.67	-	-.20	-	-	-
	WIND	-	-	-	-	-	-	-	815	-	1509	-	-	-
Rainbow Reservoir	EVAP	-	-	-	-	-	6.45	4.70	4.28	2.83	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	2520	1394	1536	1658	-	-	-	-
Trempealeau Dam 6	EVAP	-	-	-	-	B6.05	9.96	7.79	6.07	4.30	3.84	-	-	-
	DEP	-	-	-	-	-.10	+3.07	+.04	-.76	-.68	+.26	-	-	-
	WIND	-	-	-	-	-	4775	-	2656	2279	3759	-	-	-
WYOMING														
Archer (c)	EVAP	-	-	-	-	B4.43	7.01	5.84	6.68	4.24	-	-	-	-
	DEP	-	-	-	-	-1.26	+.23	-1.97	-.31	-1.35	-	-	-	-
	WIND	-	-	9318	5170	4262	3515	2381	2812	2578	-	6824	7510	-
Boysen Dam	EVAP	-	-	-	B6.06	8.15	10.83	10.12	10.99	6.34	4.38	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	2648	2413	2455	2106	2146	1521	-
Farson	EVAP	-	-	-	-	-	B11.05	10.16	-	B8.43	-	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	2216	1844	1508	-	-	-	-
Heart Mountain	EVAP	-	-	-	-	-	-	10.04	9.71	7.37	7.16	-	-	-
	DEP													
	WIND	-	-	-	-	-	-	3225	3180	2840	3524	B2630	B2685	-
Keyhole Dam	EVAP	-	-	-	-	5.31	7.89	8.77	9.00	6.43	4.43	-	-	-
	DEP													
	WIND	-	-	-	-	2600	2020	1587	1644	2347	2674	2785	2877	-
Pathfinder	EVAP	-	-	-	-	B5.66	B7.81	7.64	7.98	5.52	-	-	-	-
	DEP													
	WIND	-	-	-	-	3729	3540	2383	2487	3078	-	-	-	-
Sheridan Field (c)	EVAP	-	-	-	B3.04	4.60	B6.76	7.71	7.29	5.03	-	-	-	-
	DEP	-	-	-	-.69	-.42	+.47	-.34	-.08	-.07	-	-	-	-
	WIND	-	-	-	4319	3732	3118	2484	2262	2364	2822	2446	1707	-
Whalen Dam	EVAP	-	-	--	--	6.66	9.97	9.48	8.07	5.36	B5.20	-	-	-
	DEP													
	WIND	-	-	-	-	3428	2972	2021	1580	2029	-	-	-	-

(a) Evaporation measured in 3-foot square sunken pan, 36 inches deep, in ground about 34 inches.
(b) Evaporation measured in 3-foot square sunken pan, 18 inches deep, and filled to a depth of 14 inches.
(c) Evaporation measured in B.P.I. sunken pan of 6 foot diameter.
(d) Friez weighing type recording evaporation pan, diameter 25.3 inches, filled to a depth of approximately 3 inches.
(e) 68" circular pan, no ventilation underneath.
(f) Pan 3 feet square mounted on 10-foot platform.
(g) Sunken pan 30 inches in diameter, 30 inches deep and filled to approximately 10 inches.
(h) Standard class A pan resting on wood float in lake.
(i) Pan 4 feet in diameter, depth of 36 inches, and rests on wooden raft and support in lake.
(j) Evaporation measured in sunken pan of 54 inch diameter.
(k) Sunken pan 10 feet by 3 feet.
(l) 4-foot sunken pan.

EXCESSIVE PRECIPITATION

(Excessive Short Duration Rainfall)

YEAR 1950

This table contains statistics of maximum amounts of rainfall during the calendar year 1950. Data presented in this table are generally from stations equipped with tipping bucket recording gages. Stations are at City Office locations unless otherwise shown.

Published excessive precipitation data prior to 1896 consist of maximum amounts of rainfall in 5 and 10 minute periods, also in 1 and 24 hours.

Excessive precipitation data for the years 1896-1935 inclusive, generally present the accumulated amounts of precipitation for each 5, 10, or 20-minute intervals during storms in which the rate of fall equaled or exceeded .25 inch in any 5 minute period, or .30 in any 10 minute period, or .35 in any 15 minute period, etc., the tabulation beginning with the 5 minute period where the rate of .05 inch in 5 minutes began and continuing by 10 or 20 minute intervals up to 120 minutes. A detailed explanation of the method used may be found in the publications listed in the last paragraph of this explanation.

The present method, adopted with data for the calendar year 1936, gives the maximum fall of precipitation for the periods 5 to 180 minutes, the maximum amounts being taken for the periods in which the fall is greatest for the given time, and is tabulated to show maximum amounts for 5, 10, 15, 20, 30, 45, 60, 80, 100, 120, 150 and 180 minutes, even if the fall does not equal the excessive rate for some of the periods. (The 15 minute amount was not computed for 1936-1943 and the 150 minute amount was not computed for 1944 through 1948.)

The following Table A shows limits at which precipitation was considered excessive in this publication:

TABLE A

Duration (minutes)	Depth of precipitation (inches)	Duration (minutes)	Depth of precipitation (inches)
5	.25	60	.80
10	.30	80	1.00
15	.35	100	1.20
20	.40	120	1.40
30	.50	150	1.70
45	.65	180	2.00

This table is made up from the formula, $A = t + .20$ where A is the accumulated depth in hundredths of inches and t is the time in minutes.

For the years 1936 through 1948 stations in North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Arkansas, Louisiana, Texas, Oklahoma, and San Juan, P. R. used the limits shown in the following Table B:

TABLE B

Duration (minutes)	Depth of precipitation (inches)	Duration (minutes)	Depth of precipitation (inches)
5	.40	60	1.50
10	.50	80	1.90
15	.60	100	2.30
20	.70	120	2.70
30	.90	150	3.30
45	1.20	180	3.90

This table is made up from the formula $A = 2t + .30$. Its use, however, was discontinued at the end of 1948 and Table A is used by all sections for 1949 and the following years.

Publication of Data. A summary of maximum precipitation data for the years prior to 1896 is published in the annual report of the Chief of the Weather Bureau for 1895-1896. Data for the years 1896 through 1934 have been published in the appropriate annual reports of the Chief of the Weather Bureau. For the years 1935 through 1942 these data are published in the appropriate issue of the United States Meteorological Yearbook. Data for 1943 through 1949 will be presented in the Supplement to the Climatological Data, National Summary. For 1950 and each succeeding year excessive precipitation will be presented in the annual issues of the Climatological Data, National Summary.

EXCESSIVE SHORT DURATION RAINFALL

Table 8

YEAR 1950

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
ALABAMA												
Birmingham												
Jan. 6	0.15	0.21	0.36	0.43	0.51	0.65	0.67	0.71	0.80	0.89	0.91	0.98
Jan. 10	.28	.35	.39	.42	.47	.57	.65	.73	.79	.80	.80	.81
Feb. 7	.20	.34	.39	.47	.63	.80	.88	.94	.97	.97	.97	.97
May 2	.33	.48	.52	.54	.81	.99	1.05	1.09	1.11	1.13	1.14	1.17
May 19	.24	.32	.39	.44	.50	.56	.61	.67	.69	.71	.72	.72
Jun. 8	.25	.27	.28	.28	.30	.31	.32	.32	.32	.32	.32	.32
Jun. 20	.21	.40	.47	.48	.50	.51	.51	.51	.51	.51	.51	.51
Jun. 21	.26	.37	.52	.68	.90	1.13	1.22	1.28	1.36	1.51	1.63	1.66
Jun. 27	.14	.26	.37	.46	.49	.49	.49	.49	.49	.49	.49	.49
Jul. 6	.14	.21	.31	.40	.52	.62	.65	.66	.66	.66	.66	.67
Jul. 12	.26	.38	.42	.59	.78	.80	.81	.82	.83	.92	1.05	1.35
Jul. 13	.21	.32	.35	.40	.42	.66	.76	.81	.83	.84	.86	.90
Jul. 14	.49	.74	.94	1.20	1.51	1.96	2.26	2.35	2.36	2.38	2.49	2.57
Jul. 24	.27	.37	.38	.47	.64	.68	.78	.83	.83	.83	.84	.84
Jul. 26	.30	.34	.45	.57	.67	.70	.80	.96	.98	.98	1.04	1.04
Jul. 27	.20	.31	.37	.47	.55	.68	.78	.80	.82	.83	.86	.87
Jul. 31	.22	.33	.40	.43	.43	.43	.43	.43	.44	.44	.44	.44
Aug. 29	.35	.61	.74	.80	1.00	1.33	1.71	2.23	2.35	2.36	2.37	2.66
Dec. 3	.32	.47	.65	.76	.86	1.01	1.10	1.15	1.16	1.24	1.30	1.31
Mobile												
Jan. 6	.28	.50	.53	.54	.67	.69	.73	.80	.85	.86	.86	.86
Jan. 27	.51	.83	.95	.98	1.01	1.02	1.03	1.04	1.04	1.04	1.04	1.04
Mar. 1	.23	.28	.32	.38	.53	.76	.83	.89	.90	.91	.91	.91
Mar. 8	.19	.42	.48	.50	.51	.52	.52	.52	.52	.52	.52	.52
Mar. 15	.30	.48	.59	.66	.80	.88	.90	.94	1.00	1.03	1.03	1.03
Mar. 15	.35	.48	.69	.85	1.06	1.64	1.76	1.79	1.79	1.79	1.81	1.83
Mar. 22	.34	.47	.54	.55	.56	.56	.56	.59	.60	.60	.60	.60
Apr. 3	.09	.16	.35	.50	.55	.57	.59	.60	.64	.75	1.32	1.55
Apr. 4	.10	.20	.35	.40	.83	1.35	1.63	1.85	2.08	2.11	2.64	2.64
Apr. 18	.23	.62	.87	.92	.96	.99	.99	.99	.99	.99	.99	.99
May 14	.07	.35	.62	.95	1.41	1.48	1.48	1.48	1.48	1.48	1.48	1.48
May 21	.10	.35	.45	.53	.62	.70	.70	.70	.71	.71	.72	.72
June 4	.01	.06	.09	.13	.38	.65	.65	.65	.65	.65	.65	.65
June 10	.02	.22	.39	.43	.43	.43	.43	.43	.43	.43	.43	.43
June 20	.02	.07	.21	.43	.51	.55	.55	.68	.69	.73	.73	.73
July 5	.17	.48	.61	.67	.68	.68	.68	.68	.68	.68	.68	.68
July 6	.13	.15	.15	.15	.58	.61	.61	.61	.61	.61	.61	.61
July 7	.24	.29	.29	.30	.69	.98	1.11	1.13	1.16	1.21	1.30	1.35
July 11	.04	.15	.17	.53	.90	1.00	1.05	1.05	1.05	1.13	1.13	1.21
July 14	.32	.37	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38
July 27	.20	.44	.55	.57	.58	.58	.58	.58	.58	.58	.58	.58
Aug. 18	.14	.34	.34	.34	.34	.35	.35	.35	.36	.36	.45	.49
Aug. 30	.08	.14	.22	.27	.53	.86	.93	.99	1.05	1.05	1.05	1.05
Sept. 2	.16	.21	.24	.46	.79	1.31	1.33	1.67	1.96	2.46	2.51	2.63
Sept. 2	.15	.27	.39	.45	.51	.52	.52	1.91	2.27	2.27	2.39	2.45
Sept. 12	.36	.47	.53	.53	.53	.53	.53	.53	.53	.53	.53	.53
Dec. 6	.20	.49	.68	.72	.84	.93	.96	1.02	1.08	1.10	1.12	1.18
Dec. 28	.20	.30	.32	.34	.37	.41	.46	.52	.56	.60	.64	.64
Montgomery												
Jan. 10	.24	.36	.51	.63	.73	.94	1.03	1.04	1.06	1.14	1.19	1.22
Feb. 9	.21	.41	.55	.62	.67	.76	.78	.82	.84	.88	.96	1.07
Apr. 25	.27	.41	.52	.56	.57	.64	.64	.68	.68	.68	.68	.68
May 14	.27	.38	.39	.39	.39	.39	.40	.45	.49	.61	.61	.61
June 9	.39	.67	.84	1.02	1.19	1.30	1.32	1.33	1.37	1.39	1.40	1.40
July 12	.29	.54	.61	.70	.78	.85	.90	1.06	1.20	1.26	1.31	1.37
July 30	.25	.42	.48	.49	.51	.52	.58	.60	.61	.62	.64	.66
Sept. 7	.17	.31	.45	.55	.77	.91	1.03	1.13	1.20	1.27	1.40	1.48
Sept. 12	.35	.46	.47	.47	.47	.47	.47	.47	.47	.47	.47	.47
Sept. 29	.41	.70	1.01	1.15	1.40	1.73	2.23	2.34	2.38	2.50	2.81	3.73
Nov. 20	.22	.44	.60	.66	.70	.73	.76	.80	.83	.86	.86	.86
ARIZONA												
Phoenix												
Sept. 18	.24	.37	.43	.44	.44	.48	.49	.52	.52	.52	.52	.52
Tucson												
July 21	.28	.45	.55	.60	.67	.77	.80	.86	.88	.96	1.02	1.05
Sept. 7	.32	.48	.60	.68	.76	.83	.83	.83	.83	.83	.83	.83
Winslow						None						
Yuma AP						None						
ARKANSAS												
Fort Smith AP												
Apr. 3	.20	.27	.42	.49	.52	.55	.60	.60	.60	.60	.60	.60
May 7	.22	.38	.49	.55	.65	.77	1.10	1.35	1.45	1.99	2.29	2.35
May 7	.27	.36	.44	.47	.49	.53	.55	.60	.63	.65	.70	.74
May 29	.29	.45	.54	.64	.96	1.00	1.04	1.08	1.13	1.16	1.23	1.24
July 17	.37	.49	.51	.57	.69	.75	.75	.77	.78	.87	.93	.98
July 17	.42	.54	.58	.58	.60	.61	.62	.68	.70	.71	.73	.73
July 21	.36	.52	.67	.92	.98	.98	1.06	1.07	1.13	1.27	1.33	1.33
July 22	.28	.53	.74	.84	1.07	1.23	1.48	1.70	1.96	2.08	2.47	2.61
Aug. 1	.26	.37	.40	.52	.58	.79	.80	.86	.86	.86	.86	.86
Sept. 11	.24	.40	.43	.43	.43	.43	.43	.43	.43	.43	.43	.44
Sept. 14	.28	.39	.42	.43	.43	.43	.66	.76	.94	.96	.96	.96
Little Rock AP												
Feb. 12	.32	.37	.43	.45	.50	.61	.78	.86	.91	.93	.98	1.13
Mar. 26	.20	.31	.44	.52	.72	.85	.86	.87	.91	.95	1.05	1.43
Apr. 4	.17	.26	.34	.41	.61	.70	.72	.76	.89	.95	.96	1.01
May 19	.43	.47	.47	.48	.53	.57	.59	.59	.59	.59	.59	.59
June 10	.25	.45	.54	.57	.62	.64	.64	.67	.68	.70	.71	.78
Aug. 17	.26	.39	.57	.67	.76	.84	.89	1.06	1.07	1.07	1.07	1.10
Aug. 24	.31	.42	.61	.66	.66	.66	.67	.68	.69	.92	.92	.92
Sept. 11	.50	.69	.72	.73	.74	.74	.74	.74	.74	.74	.75	.75
Sept. 16	.27	.36	.46	.54	.60	.66	.68	.71	.72	.76	.80	.83
Sept. 27	.26	.44	.60	.78	.92	.94	.97	1.01	1.12	1.13	1.14	1.26
Nov. 15	.32	.56	.79	1.02	1.31	1.92	2.01	2.05	2.08	2.14	2.15	2.15
CALIFORNIA												
Eureka												
Oct. 29	.21	.31	.38	.55	.71	.93	1.20	1.37	1.57	1.72	2.16	2.53
Fresno						None						
Los Angeles						None						

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
CALIFORNIA (Cont.)												
Red Bluff												
Feb. 5	0.32	0.38	0.42	0.42	0.44	0.45	0.47	0.47	0.52	0.60	0.63	0.65
Oct. 26	.34	.48	.75	.82	.88	.95	1.21	1.47	1.61	1.69	1.73	1.78
Sacramento												
Oct. 26	.36	.44	.47	.49	.52		.62			.78		
San Diego						None						
San Francisco												
Oct. 25	.27	.41	.53	.54	.58	.64	.69	.72	.75	.79	.85	.90
Oct. 26	.25	.30	.32	.33	.36	.39	.39	.41	.41	.41	.42	.42
COLORADO												
Denver AP												
June 16	.33	.55	.65	.74	.79	.80	1.15	1.27	1.27	1.41	1.68	1.84
June 18-19	.30	.48	.53	.56	.57	.59	.60	.60	.64	.66	.66	.69
Grand Junction						None						
Pueblo												
June 20	.27	.32	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33
July 19	.33	.64	.95	1.00	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Sept. 8	.25	.42	.49	.53	.57	.57	.58	.59	.60	.60	.60	.60
CONNECTICUT												
Hartford												
June 17	.28	.39	.40	.40	.51	.54	.76	.79	.80	.80	.80	.80
June 21	.31	.36	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37
July 12	.29	.38	.49	.69	.94	.94	.94	.94	.94	.94	.94	.94
Aug. 20	.18	.28	.32	.45	.59	.60	.61	.77	.92	.93	.98	.98
New Haven												
June 4	.18	.34	.49	.65	.80	.86	.89	.97	.99	1.04	1.10	1.12
Aug. 20	.34	.61	.75	.82	1.01	1.11	1.17	1.25	1.47	1.55	1.55	1.59
DIST. OF COLUMBIA												
Washington												
Apr. 27-28	.16	.25	.37	.43	.51	.62	.70	.76	.77	.78	.80	.81
May 15	.20	.36	.46	.54	.60	.69	.75	.77	1.13	1.24	1.25	1.27
May 23	.36	.56	.57	.58	.58	.58	.59	.59	.59	.59	.59	.59
May 31	.22	.32	.45	.49	.61	.62	.62	.62	.62	.62	.65	.76
June 10	.27	.32	.34	.37	.39	.42	.46	.55	.58	.59	.59	.60
July 5	.45	.65	.78	.80	.84	1.04	1.09	1.12	1.14	1.15	1.15	1.15
July 20	.24	.39	.48	.49	.52	.54	.56	.57	.58	.58	.58	.59
Aug. 19	.27	.42	.49	.54	.72	.83	1.03	1.06	1.07	1.34	1.64	1.72
Aug. 29	.21	.29	.37	.42	.43	.43	.63	.55	.55	.55	.55	.55
Sept. 10	.24	.46	.58	.68	.82	1.02	1.37	1.71	1.79	1.85	1.95	2.10
Nov. 25	.27	.31	.35	.37	.41	.50	.58	.64	.75	.84	.95	1.18
FLORIDA												
Apalachicola												
Feb. 22	.37	.49	.54	.55	.56	.56	.56	.56	.56	.56	.68	.70
Apr. 4	.25	.44	.63	.71	.83	1.04	1.30	1.55	1.57	1.57	1.57	2.20
May 15	.29	.54	.76	.88	1.00	1.08	1.20	1.32	1.37	1.42	1.45	1.46
June 7	.43	.76	1.13	1.49	1.85	2.20	2.56	3.61	3.90	4.03	4.06	4.10
July 7	.42	.58	.70	.79	.92	1.02	1.05	1.06	1.08	1.08	1.09	1.09
July 7-8	.43	.66	.80	1.05	1.22	1.36	1.42	1.97	2.50	2.69	3.13	3.58
July 26	.20	.31	.40	.46	.50	.37	.88	.89	.90	.90	.90	.91
July 28	.26	.47	.60	.70	.75	.78	.82	.88	.92	.98	1.02	1.78
July 29	.18	.38	.39	.40	.45	.47	.48	.48	.48	.48	.57	.61
Aug. 30	.30	.46	.61	.89	.98	1.00	1.03	1.23	1.31	1.35	1.40	1.42
Jacksonville												
Apr. 27	.43	.68	.96	1.27	1.81	1.95	2.03	2.27	2.41	2.43	2.43	2.43
May 15	.23	.31	.45	.49	.56	.60	.62	.69	.77	.86	.97	1.03
June 30	.35	.62	.81	.81	.87	.88	.88	.88	.89	.89	.89	.89
July 1	.43	.64	.73	.76	.81	.83	.83	.83	.83	.83	.83	.83
July 2	.27	.37	.39	.41	.44	.46	.48	.53	.59	.67	.71	.75
July 3	.29	.54	.60	.77	.85	1.09	1.20	1.22	1.22	1.24	1.25	1.25
July 6	.30	.44	.52	.56	.56	.56	.59	.62	.62	.65	.70	.70
July 8	.34	.46	.47	.48	.50	.51	.52	.52	.52	.52	.52	.53
July 9	.29	.50	.72	.93	1.22	1.36	1.56	1.62	1.67	1.69	1.74	1.74
July 11	.30	.53	.57	.60	.61	.61	.61	.62	.62	.62	.62	.62
July 16	.28	.45	.47	.47	.47	.56	.59	.59	.59	.59	.59	.59
July 19	.22	.33	.40	.46	.49	.55	.56	.57	.57	.57	.57	.57
Aug. 21	.55	.85	1.09	1.25	1.36	1.38	1.38	1.39	1.39	1.39	1.39	1.39
Sept. 5	.22	.42	.54	.62	.81	.99	1.06	1.50	1.89	2.18	2.33	2.75
Sept. 5-6	.17	.34	.45	.50	.78	.98	1.11	1.29	1.48	1.57	1.86	2.25
Sept. 6	.21	.40	.49	.58	.74	.90	1.19	1.46	1.71	1.79	1.92	2.32
Sept. 29	.25	.41	.63	.77	.91	.99	1.00	1.02	1.02	1.03	1.03	1.05
Oct. 18	.33	.64	.91	1.13	1.61	2.04	2.31	2.64	2.96	3.24	3.57	3.80
Key West												
Feb. 7	.16	.29	.36	.39	.46	.48	.60	.79	.95	.97	1.00	1.03
Mar. 18	.42	.63	.76	.81	.88	.92	.95	.96	.96	.96	.97	.98
May 24	.27	.38	.43	.46	.48	.48	.50	.51	.51	.51	.51	.51
Aug. 8	.36	.46	.68	.82	.91	1.22	1.26	1.27	1.27	1.31	1.31	1.31
Aug. 9	.39	.48	.50	.51	.57	.59	.59	.59	.59	.59	.59	.59
Aug. 21	.27	.46	.61	.74	1.06	1.28	1.38	1.40	1.40	1.40	1.40	1.40
Sept. 17	.44	.70	.99	1.20	1.42	1.52	1.54	1.54	1.54	1.54	1.55	1.55
Sept. 19	.34	.66	.83	.93	1.00	1.13	1.23	1.30	1.33	1.35	1.40	1.40
Miami												
Apr. 5	.44	.72	.92	1.02	1.10	1.24	1.30	1.35	1.37	1.38	1.41	1.46
May 17	.18	.32	.37	.43	.47	.49	.49	.49	.51	.51	.51	.51
June 1	.18	.25	.29	.35	.55	.63	.66	.66	.67	.67	.67	.67
June 5	.25	.39	.52	.65	.68	.70	.71	.71	.71	.71	.71	.71
July 2	.23	.34	.38	.43	.45	.45	.50	.50	.50	.65	.70	.70
July 15	.27	.57	.61	.61	.65	.66	.66	.66	.66	.66	.66	.66
July 21	.24	.41	.52	.57	.70	.73	.88	.88	.90	.93	.96	.99
Aug. 8	.40	.72	.89	1.11	1.34	1.55	1.97	2.75	3.14	3.27	3.66	4.02
Aug. 9	.29	.51	.63	.65	.67	.69	.69	.72	.95	.95	.95	.95
Aug. 23	.28	.35	.40	.44	.52	.52	.53	.54	.54	.54	.56	.57
Sept. 17	.20	.32	.40	.48	.52	.54	.54	.54	.54	.54	.54	.54
Oct. 5	.30	.46	.49	.51	.59	.75	.76	.98	.99	1.00	1.27	1.27
Oct. 7	.33	.45	.56	.82	.88	.88	.88	.88	.88	.88	.88	.88
Oct. 14	.24	.38	.52	.61	.83	1.00	1.09	1.12	1.18	1.25	1.32	1.35
Oct. 14	.31	.59	.68	.88	1.19	1.26	1.26	1.30	1.35	1.39	1.40	2.03
Oct. 16	.17	.32	.43	.55	.77	.90	1.00	1.00	1.07	1.32	1.44	1.53
*Oct. 17	.63	.78	1.52	2.10	2.26	2.59	2.76	2.95	3.15	3.38	3.42	3.52

*Hurricane

EXCESSIVE SHORT DURATION RAINFALL

Table 8—Continued

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
FLORIDA (Cont'd.)												
Pensacola												
Mar. 15	0.20	0.30	0.39	0.44	0.49	0.61	0.67	0.77	0.84	0.89	0.91	1.22
Apr. 3-4	.22	.31	.36	.39	.49	.55	.60	.69	.78	.83	.98	1.09
Apr. 4	.32	.43	.55	.56	.56	.60	.70	1.04	1.17	1.19	1.34	1.42
Apr. 18	.31	.47	.54	.57	.60	.65	.69	.72	.72	.72	.72	.72
Apr. 28	.17	.30	.38	.40	.54	.57	.59	.76	.91	.97	1.00	1.02
May 17	.29	.51	.67	.74	.79	.82	.85	.85	.85	.85	.85	.85
May 20	.35	.64	.89	1.02	1.06	1.11	1.12	1.13	1.13	1.16	1.19	1.19
June 6	.26	.44	.68	.80	.90	.94	.97	1.02	1.06	1.09	1.24	1.33
July 3	.32	.52	.79	.97	1.17	1.43	1.83	1.93	1.94	1.94	1.95	1.96
July 12	.15	.26	.36	.41	.50	.67	.72	.86	.88	.99	1.14	1.27
Aug. 18	.36	.68	.72	.94	1.09	1.09	1.16	1.20	1.27	1.27	1.27	1.27
Aug. 29	.18	.32	.41	.44	.50	.54	.55	.57	.59	.91	1.01	1.02
Aug. 30	.45	.79	.97	1.03	1.14	1.38	1.46	1.51	1.68	2.17	2.51	2.66
Sept. 1	.35	.62	.88	1.01	1.17	1.24	1.24	1.24	1.25	1.27	1.34	1.44
Tampa AP												
Apr. 5	.44	.78	.85	.89	.96	1.04	1.11	1.18	1.32	1.38	1.47	1.56
May 24	.20	.38	.47	.59	.65	.77	.84	.86	.87	.87	.87	.87
June 10	.61	.91	1.14	1.29	1.50	1.78	1.85	1.86	1.87	1.87	1.88	1.88
June 13	.41	.76	1.10	1.32	1.51	1.73	2.32	2.70	2.82	2.84	2.84	2.84
June 27	.23	.36	.54	.71	.81	.82	.82	.83	.83	.83	.84	.84
July 1	.28	.48	.58	.67	.75	.77	.88	.90	.91	.92	.92	.94
July 7	.23	.44	.66	.85	1.15	1.37	1.62	1.81	1.97	2.21	2.42	2.51
July 13	.22	.43	.54	.64	.78	.83	.90	.92	.93	.95	.95	.95
July 15	.30	.50	.72	.82	.94	1.03	1.06	1.08	1.09	1.10	1.11	1.12
July 23	.59	1.02	1.32	1.40	1.47	1.55	1.57	1.58	1.60	1.61	1.62	1.62
Aug. 12	.26	.48	.66	.80	1.11	1.25	1.45	1.45	1.45	1.45	1.45	1.45
Aug. 14	.27	.41	.42	.43	.44	.45	.46	.46	.46	.46	.46	.46
Aug. 16	.16	.21	.27	.34	.40	.65	.77	.80	.82	.83	.84	.84
Aug. 23	.36	.54	.84	1.07	1.19	1.46	1.69	1.75	1.76	1.77	1.78	1.78
Aug. 28	.29	.39	.52	.60	.70	.75	.80	.84	.88	.90	.90	.91
Sept. 4	.25	.38	.47	.63	.73	.78	.81	.88	.93	.93	.94	.98
Sept. 28	.21	.40	.48	.51	.62	.63	.63	.63	.63	.63	.78	.80
Sept. 29	.29	.48	.73	.80	.83	.98	1.01	1.05	1.16	1.18	1.18	1.18
Dec. 3	.15	.26	.34	.41	.46	.54	.61	.67	.83	.92	1.10	1.29
Dec. 7	.20	.35	.53	.65	.95	1.05	1.06	1.09	1.12	1.17	1.27	1.33
Dec. 17	.23	.29	.38	.41	.51	.62	.67	.83	.95	1.01	1.11	1.16
GEORGIA												
Atlanta AP												
Jan. 10	.29	.44	.52	.55	.60	.65	.68	.70	.72	.77	.82	.84
Mar. 13	.13	.19	.25	.35	.50	.60	.64	.66	.72	.79	.84	.91
May 12	.25	.38	.41	.41	.41	.41	.41	.41	.41	.41	.41	.42
June 8	.24	.37	.47	.51	.73	.78	.82	.84	.87	.88	.90	1.23
July 26	.27	.35	.37	.38	.38	.61	.68	.72	.75	.80	.87	.90
July 28	.19	.30	.45	.59	.77	.96	1.12	1.36	1.43	1.69	1.94	1.98
Aug. 11	.18	.28	.35	.42	.46	.60	.62	.65	.65	.65	.65	.65
Aug. 25	.17	.31	.46	.60	.83	.90	1.46	1.58	1.61	1.64	1.68	1.74
Aug. 26	.30	.50	.58	.61	.70	.79	.88	.88	.88	.88	.88	.88
Nov. 20	.25	.36	.40	.43	.47	.49	.53	.58	.59	.59	.60	.60
Augusta												
May 28	.24	.40	.52	.54	.54	.54	.54	.54	.54	.54	1.15	2.09
May 28	.49	.89	1.28	1.38	1.52	1.55	1.57	1.59	1.59	1.59	1.60	2.09
June 3	.30	.42	.42	.43	.43	.43	.44	.45	.45	.45	.45	.45
July 2	.30	.55	.78	.86	1.09	1.28	1.32	1.34	1.34	1.34	1.34	1.34
July 5	.38	.55	.57	.57	.58	.59	.63	.67	.73	.76	.78	.79
July 6	.63	1.10	1.53	1.87	2.17	2.60	2.95	3.18	3.35	3.40	3.45	3.48
July 15	.39	.70	.89	1.00	1.25	1.52	1.55	1.56	1.56	1.56	1.56	1.56
July 31	.55	1.03	1.18	1.21	1.53	1.57	1.58	1.73	1.73	1.73	1.73	1.73
Aug. 31	.26	.31	.33	.34	.35	.38	.39	.40	.41	.43	.43	.44
Sept. 1	.36	.52	.53	.54	.55	.55	.55	.55	.55	.55	.56	.56
Nov. 3	.91	1.08	1.13	1.17	1.25	1.39	1.39	1.40	1.40	1.40	1.40	1.40
Macon AP												
May 30	.30	.50	.70	.85	.90	1.06	1.25	1.30	1.34	1.36	1.39	1.47
June 3	.25	.39	.40	.41	.41	.41	.41	.41	.41	.41	.41	.41
June 7	.23	.35	.43	.43	.43	.43	.46	.46	.46	.46	.46	.46
Aug. 16	.29	.55	.81	.96	1.08	1.12	1.18	1.19	1.21	1.22	1.22	1.22
Savannah AP												
Mar. 13	.18	.31	.39	.41	.43	.44	.57	.65	.66	.71	.76	.78
Apr. 25	.20	.23	.35	.43	.49	.49	.57	.70	.77	.77	.95	1.09
Apr. 27	.19	.30	.45	.50	.56	.58	.61	.65	.67	.70	.73	.74
May 19	.18	.29	.38	.43	.56	.64	.66	.71	.73	.74	.86	.93
May 29	.29	.42	.59	.77	1.06	1.23	1.29	1.30	1.35	1.45	1.49	1.51
June 30	.31	.63	.79	.86	.91	1.33	1.34	1.35	1.36	1.36	1.37	1.38
July 22	.29	.45	.58	.68	.77	.81	.82	.86	.90	.93	.96	.97
July 25	.23	.27	.40	.51	.60	.64	.64	.64	.65	.66	.70	.71
July 31	.20	.29	.39	.39	.39	.40	.40	.40	.45	.57	.57	.57
Aug. 11	.21	.34	.49	.66	.84	.94	.99	1.02	1.03	1.04	1.06	1.08
Aug. 23	.24	.45	.64	.74	.84	.91	1.00	1.00	1.00	1.00	1.00	1.00
Aug. 24	.38	.61	.77	.87	1.00	1.07	1.10	1.17	1.17	1.17	1.17	1.17
Aug. 25	.23	.37	.51	.54	.66	.70	.70	.70	.70	.70	.70	.71
Aug. 27	.24	.40	.52	.54	.56	.57	.58	.58	.58	.58	.58	.58
Sept. 4	.33	.64	.88	1.11	1.41	1.69	1.75	1.85	1.85	1.85	1.89	1.89
Sept. 5	.36	.59	.79	.93	1.16	1.55	2.17	2.30	2.34	2.33	2.79	3.11
Sept. 5	.18	.38	.49	.57	.80	1.09	1.27	1.55	1.97	2.03	2.20	2.45
Sept. 7	.53	.96	1.30	1.69	2.23	2.77	3.10	3.22	3.33	3.38	3.43	3.56
Sept. 12	.24	.37	.49	.64	.71	.71	.71	.71	.71	.71	.71	.71
IDAHO												
Boise AP						None						
Pocatello AP						None						
ILLINOIS												
Cairo												
Jan. 10	.22	.39	.47	.52	.57	.64	.72	.83	.92	1.01	1.06	1.11
Jan. 15	.13	.22	.33	.42	.51	.54	.55	.56	.56	.57	.58	.60
Mar. 26-27	.36	.46	.56	.58	.60	.71	.78	.86	.93	1.23	1.42	1.58
May 10	.28	.40	.44	.47	.47	.48	.53	.54	.59	.65	.65	.66
May 11	.29	.41	.47	.50	.55	.57	.58	.69	.86	.90	.99	1.08
May 26	.21	.38	.46	.47	.48	.48	.48	.48	.48	.48	.48	.48
June 10	.61	1.03	1.20	1.32	1.41	1.49	1.55	1.60	1.62	1.65	1.66	1.66
July 4	.15	.24	.33	.42	.52	.55	.60	.67	.69	.70	.72	.75
July 16	.23	.36	.44	.45	.47	.48	.48	.48	.48	.48	.48	.48
July 23	.12	.22	.30	.41	.54	.62	.65	.76	.85	.88	.92	.96
Aug. 1	.23	.40	.50	.54	.59	.62	.65	.67	.67	.67	.67	.67
Aug. 9	.23	.33	.41	.45	.52	.55	.55	.55	.55	.55	.55	.56

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
ILLINOIS (Cont.)												
Cairo (Cont'd.)												
Aug. 15	0.45	0.59	0.59	0.60	0.60	0.60	0.60	0.60	1.02	1.15	1.16	1.18
Sept. 3	.26	.44	.50	.52	.52	.52	.52	.52	.52	.52	.52	.54
Nov. 8-9	.20	.31	.39	.45	.53	.58	.64	.69	.70	.70	.73	.75
Nov. 15-16	.34	.39	.40	.43	.51	.56	.58	.65	.67	.68	.70	.70
Nov. 19-20	.39	.64	.82	.95	1.34	1.49	1.62	1.65	1.66	1.67	1.70	1.71
Chicago AP												
Jan. 25	.28	.44	.53	.57	.59	.61	.62	.62	.63	.63	.63	.63
June 2	.22	.40	.49	.56	.69	.73	.84	.86	.92	.92	.92	.98
June 9	.20	.29	.39	.52	.63	.69	.70	.73	.73	.73	.74	.74
June 13	.16	.24	.35	.41	.49	.59	.62	.66	.74	.87	1.00	1.07
June 15	.21	.30	.31	.32	.32	.32	.32	.32	.32	.32	.32	.32
June 16	.40	.68	.76	.76	.77	.77	.78	.79	.79	.79	.79	.79
June 24	.62	.94	1.23	1.49	1.70	1.78	1.93	1.99	2.00	2.00	2.00	2.00
July 16	.26	.43	.68	.77	.96	1.24	1.39	1.71	1.95	2.08	2.34	2.44
July 17	.30	.38	.41	.44	.56	.66	.75	.78	.80	.80	.80	.80
July 26	.19	.33	.45	.54	.65	.76	.77	1.07	1.23	1.24	1.24	1.24
July 31	.36	.55	.72	.85	.90	.90	.90	.90	.90	.90	.90	.90
Sept. 21	.17	.28	.36	.46	.52	.65	.68	.80	.99	1.15	1.22	1.24
Moline												
June 18	.16	.24	.31	.37	.52	.69	.88	1.08	1.20	1.29	1.40	1.53
July 1	.42	.62	.75	.76	.78	.80	.81	.81	.82	.84	.86	.93
July 19	.15	.25	.30	.35	.50	.72	.77	.90	.92	.93	.99	1.02
Sept. 10	.20	.30	.37	.42	.47	.49	.50	.50	.50	.50	.50	.50
Sept. 11	.25	.40	.65	.90	.99	1.01	1.02	1.02	1.04	1.32	1.49	1.65
Peoria AP												
Mar. 26	.28	.41	.47	.49	.51	.51	.52	.52	.52	.52	.52	.52
Apr. 23	.22	.32	.33	.33	.36	.36	.37	.38	.38	.38	.38	.38
Apr. 24	.34	.43	.49	.52	.58	.70	.83	1.06	1.17	1.34	1.37	1.42
May 4	.28	.38	.44	.57	.63	.63	.63	.64	.64	.64	.64	.65
June 13	.26	.36	.44	.48	.61	.68	.70	.75	.79	.81	.85	.88
June 18	.16	.26	.31	.36	.50	.68	.86	1.17	1.34	1.48	1.62	1.68
July 17	.30	.34	.36	.53	.60	.62	.74	.77	.79	.79	.91	.96
Sept. 20	.20	.33	.41	.46	.52	.68	.80	1.19	1.34	1.36	1.38	1.41
Springfield AP												
Jan. 25	.17	.32	.33	.40	.44	.57	.68	.71	.73	.73	.73	.74
Apr. 3	.18	.30	.31	.31	.52	.55	.65	.65	.65	.65	.65	.65
June 18	.20	.34	.43	.56	.63	.64	.64	.64	.64	.65	.65	.65
July 3	.34	.58	.75	.87	.93	1.05	1.08	1.12	1.39	1.49	1.59	1.62
Aug. 10	.20	.34	.41	.43	.44	.46	.47	.48	.60	.62	.63	.63
Aug. 30	.29	.35	.38	.46	.54	.60	.62	.69	.72	.82	.89	.90
INDIANA												
Evansville												
Feb. 8	.25	.40	.49	.55	.85	1.09	1.16	1.34	1.44	1.48	1.56	1.60
Mar. 27	.25	.29	.30	.35	.45	.67	.71	.81	1.13	1.18	1.22	1.26
May 9-10	.18	.36	.46	.58	.82	.93	1.05	1.12	1.26	1.38	1.68	1.89
June 20	.37	.61	.76	.98	1.20	1.32	1.41	1.44	1.45	1.46	1.47	1.47
July 18	.67	.87	.93	.94	.94	.94	.94	1.01	1.08	1.11	1.15	1.15
July 23	.38	.59	.75	.88	1.13	1.27	1.29	1.30	1.30	1.30	1.30	1.30
July 31	.24	.43	.57	.71	.95	1.06	1.14	1.15	1.15	1.15	1.15	1.15
Aug. 18	.27	.35	.39	.57	.73	.77	.82	.84	.85	.86	.86	.86
Fort Wayne												
Jan. 25	.25	.30	.33	.36	.45	.57	.64	.71	.77	.87	.91	.92
June 9	.40	.46	.55	.76	.85	.89	.90	.90	.90	.90	.92	.92
June 10		.32	.44	.58	.77	.97	1.11	1.15	1.60	1.75	1.81	2.00
Aug. 28	.17	.33	.45	.49	.52	.54	.55	.62	.67	.84	.88	.89
Indianapolis AP												
Apr. 23	.39	.44	.45	.45	.46	.46	.46	.47	.47	.47	.47	.47
June 3	.17	.30	.40	.50	.66	1.04	1.18	1.35	1.65	1.84	1.98	1.04
Sept. 20	.25	.35	.50	.65	.75	.87	1.05	1.13	1.15	1.17	1.20	1.27
Sept. 21	.23	.38	.43	.46	.52	.60	.66	.74	.78	.81	.81	.81
Terre Haute AP												
Jan. 3	.24	.31	.33	.37	.41	.50	.55	.75	.85	.93	1.07	1.21
Jan. 3	.15	.27	.39	.48	.54	.62	.68	.72	.75	.79	.84	.91
Jan. 25-26	.25	.29	.32	.34	.37	.39	.40	.47	.63	.76	.89	.94
June 9	.40	.64	.76	.87	1.06	1.07	1.07	1.07	1.07	1.08	1.08	1.08
June 18	.29	.40	.45	.54	.57	.58	.58	.58	.58	.60	.76	.78
July 19	.39	.51	.51	.51	.51	.52	.52	.52	.52	.52	.52	.52
Aug. 31	.20	.32	.43	.50	.69	.81	.88	1.04	1.21	1.39	1.46	1.73
Sept. 20	.16	.24	.28	.37	.50	.60	.65	.67	.71	.79	.82	.82
Sept. 21	.21	.37	.50	.61	.75	.78	.78	.78	.78	.78	.78	.78
Dec. 2	.23	.30	.33	.35	.38	.42	.45	.51	.57	.65	.76	.81
IOWA												
Burlington AP												
Apr. 24	.28	.35	.47	.55	.68	.98	1.12	1.23	1.42	1.64	1.86	1.99
May 9	.38	.71	.83	.88	.92	.99	1.10	1.15	1.22	1.29	1.38	1.50
June 15	.36	.60	.74	.85	.89	.89	.89	.89	.89	.89	.89	.89
June 18	.31	.49	.61	.87	1.13	1.66	1.87	1.92	2.08	2.08	2.12	2.18
July 3	.28	.48	.58	.64	.65	.65	.66	.66	.66	.66	.66	.66
July 30	.26	.47	.61	.75	.82	.97	1.00	1.00	1.00	1.00	1.00	1.00
Charles City												
May 5	.23	.44	.51	.58	.66	.68	.71	.72	.74	.74	.78	.81
July 12	.15	.25	.35	.40	.47	.50	.57	.79	.83	.88	.94	.96
July 16	.18	.31	.40	.46	.56	.67	.69	.70	.70	.70	.70	.70
July 30	.16	.31	.41	.55	.72	.95	1.04	1.09	1.10	1.10	1.11	1.11
Aug. 10	.66	1.09	1.26	1.31	1.45	1.61	1.67	1.77	1.85	1.90	1.99	2.04
Sept. 11	.22	.39	.56	.62	.72	.75	.77	.78	.80	.81	.81	.81
Davenport												
Apr. 23-24	.15	.25	.34	.39	.54	.58	.74	.79	.85	1.05	1.22	1.40
May 9	.15	.25	.35	.48	.53	.58	.61	.66	.70	.73	.83	.90
June 13	.35	.50	.65	.90	1.10	1.40	1.66	1.71	1.78	1.86	1.98	2.01
June 14	.23	.38	.43	.48	.48	.48	.48	.48	.48	.48	.48	.48
July 19	.20	.40	.50	.58	.69	.73	.79	.81	.81	.82	.92	1.08
Aug. 10	.30	.53	.54	.65	.74	.75	.79	.80	.82	.83	.83	.83
Des Moines												
May 20	.26	.43	.50	.55	.65	.76	.88	.94	1.03	1.22	1.32	1.45
June 15	.45	.77	.94	.98	1.06	1.17	1.22	1.22	1.22	1.22	1.22	1.22
July 3	.42	.66	.73	.78	.80	.80	.80	.80	.80	.80	.80	.80
Dubuque												
Apr. 23	.28	.37	.51	.53	.70	.74	.85	.99	1.40	1.58	1.67	1.74
May 24	.26	.41	.46	.49	.50	.61	.65	.70	.71	.71	.71	.71

EXCESSIVE SHORT DURATION RAINFALL

Table 8—Continued

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
IOWA (Cont'd.)												
Dubuque (Cont'd.)												
June 13	0.19	0.37	0.51	0.69	0.97	1.25	1.29	1.33	1.36	1.40	1.57	1.60
June 23	.17	.26	.33	.43	.60	.74	.81	.98	1.10	1.16	1.20	1.30
July 19	.15	.28	.37	.44	.53	.60	.62	.63	.64	.64	.64	.65
July 30	.39	.75	.97	1.06	1.09	1.10	1.13	1.17	1.22	1.24	1.24	1.25
July 31	.72	1.14	1.28	1.32	1.35	1.41	1.42	1.42	1.42	1.42	1.42	1.42
Aug. 27	.21	.37	.40	.45	.45	.45	.46	.46	.46	.47	.47	.47
Sept. 20	.25	.47	.53	.54	.57	.65	.69	.70	.70	†	†	†
Sept. 21	.22	.38	.45	.52	.58	.67	1.05	1.26	1.45	1.56	2.13	2.17
Nov. 15	.26	.48	.53	.54	.56	.57	.61	.84	.89	.89	.89	.89
Sioux City AP												
June 15	.27	.47	.58	.67	.74	.75	.75	.75	.75	.75	.75	.75
June 22	.23	.34	.51	.57	.62	.63	.63	.63	.63	.64	.64	.68
Aug. 11-12	.35	.62	.87	1.06	1.50	1.64	1.66	1.67	1.68	1.70	1.76	1.84
KANSAS												
Concordia												
May 7	.37	.64	.96	1.22	1.56	1.56	1.59	1.67	1.69	1.70	1.70	1.70
May 8	.46	.75	.97	1.14	1.56	2.16	2.92	3.64	3.99	4.31	4.57	4.64
May 18	.24	.35	.45	.50	.56	.61	.64	.66	.70	.75	.76	.77
May 29	.17	.27	.40	.51	.58	.75	.85	.89	.94	.98	1.10	1.20
July 9	.45	.81	1.16	1.59	2.16	2.36	2.65	2.74	3.00	3.18	3.30	3.37
July 18	.14	.23	.31	.37	.58	.69	.74	.80	.84	.89	.97	.98
Aug. 12	.36	.49	.55	.68	.77	.86	.90	1.01	1.09	1.10	1.11	1.15
Aug. 25	.26	.47	.67	.84	1.03	1.08	1.09	1.11	1.17	1.23	1.31	1.34
Sept. 28	.25	.44	.53	.57	.66	.77	.80	.80	.80	.81	.86	.88
Oct. 1	.26	.46	.69	.84	1.06	1.29	1.78	1.96	2.21	2.33	2.45	2.46
Dodge City AP												
July 30	.18	.28	.43	.53	.60	.61	.62	.62	.63	.64	.67	.68
Aug. 6-7	.31	.54	.65	.66	.66	.66	.66	.68	.74	.76	.76	.77
Aug. 10	.20	.33	.46	.62	.86	1.03	1.13	1.19	1.20	1.27	1.37	1.37
Aug. 11	.27	.42	.52	.61	.69	.70	.71	.73	.73	.73	.73	.73
Oct. 1	.32	.45	.52	.53	.54	.55	.55	.55	.56	.56	.60	.60
Topeka AP												
May 18				.65	.84	1.16	1.23	1.23	1.23	1.23	1.78	2.04
June 2				.55	.63	1.09	1.16	1.65	1.67	1.80	1.85	1.88
June 28				.49	.55	.73	.88	.89	.90	1.14	1.17	1.19
July 3				.75	.90	1.25	1.65	2.10	2.27	2.43	2.63	2.76
July 12				.40	.47	.48	.49	.49	.49	.49	.49	.49
July 12				.62	.76	.83	.85	.85	.85	.85	.85	.85
July 15-16				.77	.80	.83	.84	.86	.89	.94	1.03	1.09
July 17				.50	.85	1.00	1.30	1.35	1.40	1.45	1.55	1.62
Aug. 7				.60	.70	.81	.89	.93	.93	.93	.93	.93
Aug. 14				.97	1.02	1.03	1.03	1.03	1.04	1.07	1.18	1.53
Aug. 25				.66	.81	.98	1.02	1.05	1.09	1.11	1.17	1.18
Sept. 10				.67	.72	.77	.82	.87	.97	1.04	1.05	1.09
Sept. 28				.70	.73	.77	.78	.80	.83	.84	.85	.86
Wichita												
Feb. 27	.24	.41	.44	.44	.52	.55	.55	.55	.55	.55	.56	.56
May 26	.21	.31	.36	.40	.45	.55	.61	.61	.61	.63	.64	.65
June 2	.35	.50	.60	.67	.76	.81	.83	.88	.90	.90	.90	.92
June 20	.15	.27	.35	.40	.42	.44	.46	.50	.52	.52	.53	.53
June 28	.12	.23	.33	.41	.45	.52	.54	.57	.61	.67	.77	.86
July 12	.23	.38	.45	.50	.55	.60	.61	.62	.62	.62	.62	.62
July 16	.34	.54	.61	.67	.79	.91	1.01	1.26	1.32	1.44	1.50	1.50
July 18	.36	.54	.68	.77	.89	1.10	1.27	1.52	1.67	1.77	1.85	1.87
July 30	.18	.35	.49	.58	.82	1.03	1.05	1.18	1.36	1.72	1.82	1.84
July 31	.52	.96	1.26	1.56	2.31	2.89	3.28	3.35	3.37	3.38	3.39	3.42
Aug. 7	.17	.35	.49	.55	.67	.70	.71	.72	.74	.77	.80	.81
Aug. 17	.29	.51	.65	.70	.79	.84	.88	.90	1.00	1.06	1.08	1.10
Sept. 15	.28	.39	.42	.47	.49	.51	.51	.52	.54	.55	.55	.55
KENTUCKY												
Louisville AP												
Jan. 15	.34	.41	.44	.46	.49	.54	.60	.65	.67	.67	.67	.69
Feb. 8	.25	.39	.57	.69	.93	1.03	1.17	1.29	1.32	1.34	1.42	1.50
May 9	.38	.58	.78	.94	1.32	1.68	1.91	1.93	2.12	2.15	2.21	2.23
May 17	.34	.37	.38	.38	.40	.41	.45	.45	.45	.46	.47	.47
May 21	.21	.32	.34	.36	.37	.38	.38	.40	.41	.43	.46	.47
June 14	.18	.28	.30	.31	.54	.54	.54	.60	.90	.91	.94	1.03
June 18	.27	.44	.48	.48	.48	.48	.55	.70	.83	.93	.93	.93
June 19	.25	.37	.38	.38	.38	.44	.56	.61	.61	.61	.61	.61
June 20	.35	.57	.70	.79	.88	.91	.92	.92	.93	.93	.93	.93
July 18	.23	.34	.45	.59	.77	.92	1.31	1.37	1.41	1.61	1.79	1.85
July 19	.26	.34	.40	.47	.51	.57	.59	.60	.60	.60	.60	.60
Aug. 18	.19	.28	.36	.39	.43	.49	.73	.80	.80	.80	.80	.82
Sept. 3	.19	.25	.36	.36	.37	.37	.39	.40	.40	.40	.40	.40
LOUISIANA												
New Orleans												
Jan. 6	.25	.38	.46	.55	.77	.98	1.05	1.10	1.11	1.15	1.15	1.16
Apr. 3	.36	.53	.61	.71	.82	.85	.91	.91	.95	1.01	1.02	1.02
Apr. 4	.20	.39	.55	.64	.74	.77	.81	.83	1.02	1.02	1.03	1.03
Apr. 25	.36	.41	.42	.42	.42	.43	.43	.43	.43	.43	.43	.43
May 13	.27	.44	.49	.54	.63	.67	.69	.69	.71	.73	.74	.76
June 6	.28	.43	.53	.59	.63	.65	.67	.71	.72	.72	.72	.72
June 28	.29	.52	.80	.99	1.19	1.22	1.22	1.22	1.22	1.22	1.22	1.22
July 12	.30	.58	.75	.96	1.07	1.10	1.23	1.26	1.28	1.28	1.28	1.28
July 14	.39	.65	.71	.73	.73	.73	.73	.73	.73	.73	.73	.73
July 23	.45	.78	1.10	1.43	1.65	1.70	1.71	1.71	1.71	1.71	1.71	1.71
Aug. 11	.39	.55	.72	.83	.88	.91	.93	.94	.94	.95	.96	.96
Aug. 20	.29	.41	.57	.64	.66	.66	.67	.67	.67	.67	.68	.69
Sept. 17	.34	.56	.69	.82	.92	.98	.98	.98	.98	.98	1.06	1.06
Dec. 3	.22	.32	.45	.57	.63	.73	.78	.86	.93	1.04	1.16	1.26
Shreveport AP												
Feb. 12	.37	.62	.69	.74	.96	1.06	1.28	1.39	1.49	1.58	1.65	1.69
Apr. 29	.33	.59	.89	1.13	1.52	1.74	1.87	1.92	1.94	1.94	1.96	1.96
Apr. 29	.17	.31	.45	.53	.62	.70	.73	.74	.74	.74	.74	.74
May 1	.18	.28	.40	.47	.71	.94	.96	1.00	1.13	1.15	1.15	1.15
May 2	.27	.31	.33	.35	.38	.40	.41	.43	.43	.43	.44	.44
May 29-30	.43	.77	1.09	1.33	1.59	1.70	1.75	1.80	1.87	1.94	1.97	1.97
June 21	.25	.44	.67	.76	.89	1.04	1.06	1.07	1.07	1.09	1.14	1.20
July 6	.22	.38	.58	.71	.77	.82	.88	1.04	1.58	1.75	1.79	1.80
July 6	.23	.42	.58	.69	.90	.98	1.05	1.09	1.10	1.50	1.54	1.55
July 14	.19	.30	.37	.46	.64	.83	.95	1.03	1.07	1.13	1.19	1.28
Aug. 31	.23	.40	.55	.72	.95	1.08	1.35	1.57	1.86	2.00	2.07	2.15
Sept. 13	.32	.57	.75	.95	1.11	1.23	1.32	1.37	1.43	1.48	1.54	1.61

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
MAINE												
Eastport												
June 27-28	0.26	0.45	0.66	0.86	1.05	1.40	1.61	1.75	1.84	2.03	2.08	2.12
Portland AP												
Aug. 18	.32	.51	.74	.93	1.07	1.18	1.25	1.28	1.30	1.33	1.35	1.39
Aug. 29	.33	.44	.46	.52	.56	.59	.62	.66	.66	.66	.67	.70
MARYLAND												
Baltimore												
May 23	.40	.52	.54	.54	.55	.56	.57	.57	.58	.60	.60	.60
June 20	.35	.55	.61	.61	.63	.64	.68	.68	.68	.69	.69	.69
July 5	.26	.32	.35	.48	.69	.72	.73	.75	.76	.76	.76	.76
Aug. 1	.24	.31	.31	.31	.32	.32	.32	.32	.32	.32	.32	.32
Aug. 19	.28	.51	.75	.98	1.27	1.46	1.59	1.74	1.81	1.83	1.84	1.89
Sept. 10	.25	.43	.59	.77	1.10	1.54	2.01	2.40	2.78	2.86	3.00	3.10
MASSACHUSETTS												
Boston AP												
Aug. 19	.25	.34	.42	.47	.52	.55	.55	.58	.60	.60	.60	.60
Nov. 26	.30	.45	.54	.60	.67	.78	.91	1.02	1.12	1.21	1.34	1.42
Nantucket												
June 21	.15	.31	.44	.45	.45	.45	.45	.50	.56	.56	.57	.57
Aug. 1	.13	.22	.33	.42	.60	.80	.95	1.06	1.18	1.21	1.33	1.41
Nov. 26	.35	.52	.58	.62	.70	.81	.88	.99	1.19	1.35	1.54	1.61
MICHIGAN												
Alpena												
July 29	.24	.33	.37	.41	.46	.52	.53	.53	.53	.53	.53	.55
July 31	.19	.27	.36	.43	.47	.50	.51	.51	.55	.55	.56	.56
Aug. 27	.29	.40	.52	.54	.55	.57	.58	.59	.62	.65	.72	.75
Detroit AP												
May 24	.38	.62	.69	.71	.72	.73	.73	.74	.74	.74	.86	.92
May 31	.19	.31	.40	.52	.73	.89	.96	1.01	1.02	1.02	1.03	1.03
Aug. 17	.33	.57	.63	.64	.65	.70	.71	.71	.71	.71	.76	.84
Escanaba												
July 28	.30	.50	.52	.52	.52	.53	.53	.53	.53	.53	.53	.53
July 29	.22	.31	.52	.56	.63	.70	.90	1.22	1.29	1.30	1.31	1.32
July 31	.22	.44	.65	.70	.77	.84	.88	.90	.91	.91	.92	.94
Grand Rapids												
Jan. 25	.25	.31	.38	.41	.49	.56	.60	.63	.64	.65	.65	.65
May 25	.30	.37	.37	.38	.38	.38	.38	.38	.38	.38	.38	.38
July 16	.35	.53	.57	.58	.62	.62	.63	.63	.63	.63	.63	.63
July 26	.34	.54	.73	.86	1.20	1.52	1.53	1.54	1.54	1.54	1.54	1.54
Lansing												
May 25	.31	.52	.60	.62	.63	.76	.83	.88	.93	.98	1.11	1.16
May 30	.36	.41	.42	.42	.43	.43	.43	.43	.43	.43	.43	.43
June 2	.25	.43	.63	.71	.81	1.10	1.26	1.34	1.41	1.47	1.62	1.65
Aug. 28	.24	.37	.46	.47	.48	.54	.55	.69	.73	.98	1.22	1.26
Marquette												
June 5	.31	.46	.47	.47	.47	.50	.50	.51	.51	.52	.52	.52
June 16	.32	.38	.39	.40	.41	.43	.43	.43	.43	.43	.43	.43
July 17	.46	.72	.75	.75	.75	.76	.76	.79	.79	.80	.81	.83
Aug. 24	.30	.41	.47	.49	.51	.54	.54	.54	.55	.55	.55	.55
Sault Ste. Marie												
June 26	.16	.29	.37	.40	.41	.44	.48	.53	.57	.59	.59	.59
MINNESOTA												
Duluth AP												
July 31	.22	.39	.53	.61	.78	.88	.90	.96	.97	1.01	1.20	1.31
Aug. 24	.27	.36	.40	.43	.52	.52	.52	.52	.52	.52	.52	.52
Aug. 24	.39	.51	.63	.67	.68	.68	.68	.68	.68	.68	.68	1.02
Oct. 1	.31	.57	.62	.64	.67	.71	.76	.82	.91	.97	1.06	1.12
Oct. 1	.29	.37	.40	.42	.43	.43	.44	.47	.47	.47	.47	.48
Minneapolis AP												
July 22	.31	.44	.58	.68	.74	.76	.80	.84	.84	.85	.86	.86
St. Cloud												
May 5				.48								
June 15			.37	.42	.50							
July 29			.36									
Aug. 16	.25											
Sept. 18			.38	.55	.59							
Oct. 1	.35	.43	.55	.68	.76	.76	1.09	1.24	1.25			
MISSISSIPPI												
Jackson												
Feb. 13	.17	.31	.45	.54	.73	.94	1.02	1.13	1.24	1.29	1.36	1.43
Mar. 27	.25	.37	.45	.54	.59	.76	.84	.98	.98	1.02	1.07	1.07
May 1	.20	.33	.44	.52	.60	.73	.81	.88	.94	1.01	1.09	1.11
July 6	.21	.30	.38	.44	.52	.65	.70	.70	.73	.73	.77	.77
July 11	.34	.65	.85	.98	1.04	1.05	1.05	1.05	1.05	1.05	1.05	1.05
July 27	.37	.67	.90	1.10	1.46	1.67	1.73	1.76	1.83	1.89	2.25	2.28
Aug. 29	.32	.47	.54	.63	.80	.99	1.05	1.14	1.22	1.40	1.40	1.40
Nov. 3	.22	.34	.43	.46	.50	.54	.59	.68	.73	.82	.94	.99
Vicksburg												
Jan. 10	.16	.28	.39	.50	.65	.79	.82	.87	.88	.91	.92	.97
Jan. 26	.47	.71	.78	.81	.91	.94	.95	.99	1.00	1.00	1.02	1.06
Feb. 8	.33	.53	.69	.79	.93	1.05	1.11	1.12	1.18	1.23	1.26	1.28
Feb. 13	.37	.56	.61	.67	.91	1.12	1.22	1.32	1.39	1.44	1.53	1.56
Apr. 17	.31	.40	.47	.55	.65	.70	.74	.79	.86	.88	.90	.91
June 3	.18	.27	.38	.53	.71	.80	.81	.82	.82	.82	.85	.90
Sept. 11	.54	1.01	1.37	1.55	1.70	1.80	1.80	1.80	1.80	1.81	1.81	1.81
Nov. 2	.29	.39	.44	.48	.65	.74	.82	.88	.89	.97	1.38	1.38
MISSOURI												
Columbia												
May 25	.25	.37	.49	.59	.78	.93	.94	.94	.94	.94	.94	.94
May 29	.33	.59	.80	.89	.92	.95	.99	1.04	1.12	1.18	1.25	1.29
June 2	.20	.36	.42	.50	.71	.74	.76	.79	1.06	1.06	1.06	1.06
June 3	.19	.28	.30	.41	.53	.80	.98	1.07	1.18	1.51	1.61	1.67
June 17	.16	.31	.41	.46	.49	.53	.60	.62	.63	.79	.81	.82

† Amounts for 120, 150 and 180 minutes overlap with amounts for the excessive on Sept. 21, listed just below.

EXCESSIVE SHORT DURATION RAINFALL

Table 8—Continued

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
MISSOURI (Cont.)												
Columbia (Cont.)												
July 18	0.23	0.33	0.48	0.66	0.75	0.79	0.83	0.86	0.89	0.93	0.96	1.07
July 19	.22	.39	.45	.56	.60	.60	.61	.61	.62	.62	.62	1.07
Aug. 8	.20	.32	.40	.42	.45	.50	.54	.56	.57	.57	.57	.57
Aug. 12	.31	.42	.50	.57	.62	.68	.73	.75	.77	.78	.79	.79
Aug. 28	.24	.36	.47	.52	.55	.58	.64	.66	.67	.68	.75	.77
Sept. 21	.22	.39	.57	.69	.77	.92	1.09	1.11	1.11	1.11	1.11	1.11
Oct. 2	.27	.30	.32	.35	.38	.43	.52	.55	.56	.57	.60	.62
Kansas City AP												
May 19	.15	.25	.37	.37	.40	.42	.43	.46	.48	.50	.55	.57
July 12	.25	.30	.42	.55	.57	.70	.72	.77	.78	.79	.79	.79
July 17	.25	.35	.60	.70	.75	.82	1.16	1.20	1.24	1.31	1.33	1.33
July 18	.25	.43	.48	.56	.58	.75	.85	.97	1.30	1.38	1.38	1.38
July 19	.30	.65	.90	.95	1.10	1.34	1.45	1.90	2.29	2.44	2.49	2.49
Aug. 7	.45	.80	1.00	1.30	1.38	1.60	1.60	1.60	1.60	1.60	1.60	1.60
Sept. 28	.37	.60	.77	.92	.99	1.06	1.06	1.60	1.60	1.67	1.89	1.89
St. Joseph												
May 4	.20	.31	.35	.35	.36	.36	.37	.37	.37	.37	.37	.37
May 9	.26	.35	.41	.46	.54	.69	.85	1.08	1.34	1.36	1.38	1.38
May 16	.19	.35	.44	.53	.79	.90	.92	.92	.94	1.33	1.35	1.35
May 20	.39	.67	.84	.90	1.00	1.03	1.04	1.07	1.11	1.18	1.28	1.32
June 9	.12	.24	.34	.41	.51	.51	.51	.51	.51	.51	.51	.51
July 12	.46	.79	1.15	1.46	1.72	1.88	1.88	1.88	1.88	1.92	2.60	2.76
Aug. 13	.17	.26	.36	.40	.46	.63	.64	.64	.65	.66	.76	.79
Aug. 28	.24	.42	.57	.64	.65	.66	.66	.66	.66	.66	.66	.66
St. Louis												
Jan. 25	.20	.24	.40	.44	.45	.45	.56	.57	.72	.73	.74	.74
Apr. 28	.29	.35	.41	.44	.48	.54	.59	.69	.79	.85	.92	1.00
May 26	.24	.37	.43	.49	.53	.56	.60	.64	.68	.69	.70	.70
June 13	.35	.54	.63	.67	.75	.83	.84	.84	.84	.84	.84	.84
June 14	.22	.28	.36	.44	.59	.87	.94	.96	.96	.96	.96	.96
Aug. 13	.18	.34	.45	.58	.88	1.12	1.23	1.51	1.64	1.74	1.77	1.85
Aug. 18	.20	.27	.35	.43	.68	.83	.93	1.03	1.16	1.28	1.35	1.36
Sept. 21	.40	.51	.51	.52	.54	.56	.58	.58	.59	.60	.60	.60
Nov. 19	.14	.22	.28	.36	.53	.64	.71	.79	.86	.93	1.04	1.11
Springfield												
Jan. 3	.30	.48	.55	.61	.80	1.07	1.38	1.46	1.75	1.93	2.03	2.18
Jan. 13	.20	.33	.34	.38	.40	.42	.51	.54	.60	.63	.76	.92
Apr. 28	.19	.31	.37	.39	.44	.49	.61	.88	1.00	1.09	1.21	1.32
May 9	.24	.35	.37	.37	.38	.39	.39	.39	.39	.46	.52	.61
May 29	.22	.38	.43	.50	.58	.69	.71	.73	.73	.73	.73	.73
May 29	.27	.35	.46	.52	.52	.82	.94	.96	1.00	1.05	1.10	1.13
June 28	.17	.28	.41	.50	.70	.76	.81	1.04	1.14	1.22	1.30	1.45
Aug. 27	.15	.29	.37	.39	.42	.44	.46	.46	.46	.46	.46	.46
Aug. 27	.44	.79	1.07	1.13	1.45	1.49	1.49	1.49	1.67	1.86	1.88	1.88
Sept. 14	.29	.51	.59	.64	.69	.72	.73	.73	.73	.74	.74	.74
MONTANA												
Billings AP												
June 12	.24	.44	.53	.57	.58	.58	.58	.59	.59	.59	.59	.60
July 2	.21	.32	.39	.48	.57	.61	.62	.63	.64	.64	.64	.64
July 29	.26	.31	.32	.32	.33	.33	.33	.33	.33	.33	.33	.33
Great Falls AP												
July 15	.21	.32	.39	.43	.46	.51	.52	.53	.54	.54	.55	.63
Aug. 4	.23	.30	.37	.39	.42	.47	.52	.55	.55	.55	.55	.55
Aug. 9	.54	.83	1.05	1.19	1.33	1.43	1.51	1.57	1.66	1.71	1.72	1.72
Havre						None						
Helena AP												
June 14	.20	.31	.33	.34	.52	.56	.56	.56	.57	.57	.57	.57
Aug. 4	.22	.30	.32	.33	.34	.37	.38	.39	.39	.39	.39	.39
Aug. 5	.30	.42	.47	.48	.49	.50	.50	.50	.50	.50	.50	.50
Missoula						None						
NEBRASKA												
Lincoln												
July 12	.17	.26	.34	.48	.62	.71	.73	.74	.75	.75	.75	.75
Aug. 5	.28	.44	.50	.51	.51	.52	.52	.52	.55	.55	.55	.55
Aug. 7	.15	.29	.41	.48	.57	.68	.84	.99	1.01	1.04	1.21	1.22
Sept. 20	.19	.29	.37	.51	.59	.61	.62	.62	.62	.62	.62	.62
North Platte												
May 17	.35	.55	.67	.74	.80	.80	.80	.80	.80	.80	.80	.80
Aug. 11	.38	.68	1.00	1.23	1.80	2.48	3.14	3.23	3.27	3.28	3.35	3.36
Aug. 25	.26	.36	.43	.53	.64	.70	.70	.70	.70	.70	.70	.70
Omaha												
May 8	.18	.26	.39	.43	.58	.82	1.00	1.06	1.11	1.13	1.15	1.17
July 12	.20	.39	.55	.66	.82	1.00	1.10	1.18	1.66	2.00	2.28	2.45
July 15	.25	.51	.65	.75	.87	.96	1.20	1.60	1.71	1.72	1.72	1.72
Aug. 12	.40	.47	.53	.68	.98	1.33	1.54	1.60	1.78	1.90	2.18	2.25
Aug. 15	.30	.75	1.12	1.20	1.26	1.27	1.27	1.28	1.28	1.28	1.28	1.28
Aug. 17	.21	.35	.40	.45	.49	.50	.50	.50	.51	.53	.62	.67
Valentine												
July 8	.61	1.00	1.05	1.08	1.10	1.13	1.13	1.13	1.13	1.14	1.14	1.14
Aug. 3	.29	.51	.62	.69	.74	.76	.76	.76	.76	.77	.77	.77
Aug. 9	.21	.36	.44	.47	.51	.53	.53	.57	.59	.60	.61	.61
Aug. 26	.19	.33	.39	.39	.40	.41	.41	.41	.41	.41	.41	.41
NEVADA												
Elko						None						
Reno	.06	.10	.11	.17	.47	.68	.70	.72	.74	.75	.79	.79
Winnemucca AP						None						
NEW HAMPSHIRE												
Concord												
Aug. 20	.24	.33	.37	.45	.57	.65	.72	.77	.81	.83	.88	.92
Aug. 29	.46	.50	.51	.52	.54	.55	.55	.55	.55	.55	.55	.55
Aug. 31	.37	.63	.73	.76	.84	.92	.96	1.06	1.16	1.27	1.36	1.46

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
NEW JERSEY												
Atlantic City												
June 20	0.29	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
July 4	.33	.47	.47	.48	.48	.48	.48	.48	.48	.48	.48	.48
Aug. 3	.26	.44	.58	.65	.73	.91	.93	1.08	1.13	1.24	1.32	1.35
Aug. 20	.28	.40	.43	.44	.44	.51	.56	.69	.79	1.03	1.26	1.35
Sept. 9	.22	.31	.33	.34	.42	.45	.46	.55	.67	.72	.87	1.00
Nov. 25	.25	.41	.57	.61	.63	.71	.75	.98	1.07	1.16	1.20	1.24
Trenton												
June 4	.28	.36	.38	.40	.41	.43	.45	.45	.46	.63	.70	.72
July 4	.27	.42	.43	.44	.44	.44	.44	.44	.44	.44	.44	.44
July 10	.25	.46	.64	.78	1.13	1.30	1.38	1.48	1.62	1.73	2.00	2.11
July 28	.18	.33	.43	.44	.44	.44	.44	.44	.44	.44	.44	.44
Aug. 3	.20	.34	.45	.51	.76	1.10	1.31	1.48	1.71	2.01	2.30	2.67
Aug. 11	.24	.36	.43	.46	.50	.50	.50	.50	.50	.50	.50	.50
Aug. 20	.30	.38	.41	.43	.54	.57	.58	.60	.62	.63	.64	.66
Aug. 29	.36	.43	.43	.44	.44	.44	.45	.46	.46	.46	.55	.56
Aug. 31	.14	.28	.37	.39	.42	.43	.44	.46	.50	.51	.52	.52
Nov. 4	.21	.33	.42	.45	.66	.89	1.22	1.23	1.23	1.23	1.24	1.29
NEW MEXICO												
Albuquerque AP						None						
Roswell AP												
June 1	.29	.58	.63	.64	.64	.65	.77	.93	1.02	1.06	1.13	1.13
July 24	.13	.23	.35	.47	.70	.98	1.27	1.58	1.70	1.77	1.83	1.84
Sept. 4	.19	.34	.51	.63	.92	1.25	1.38	1.42	1.44	1.51	1.61	1.65
Oct. 4	.20	.30	.41	.48	.73	.99	1.20	1.40	1.52	1.55	1.59	1.62
NEW YORK												
Albany AP												
Aug. 16	.25	.32	.34	.36	.41	.45	.50	.55	.56	.56	.59	.62
Aug. 29	.21	.32	.33	.33	.41	.45	.45	.55	.55	.67	.69	.77
Aug. 31	.14	.24	.33	.44	.60	.77	.87	1.02	1.40	1.52	1.67	1.78
Aug. 31	.31	.52	.74	.75	.78	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Aug. 31	.26	.31	.34	.50	.61	.68	.69	.77	.82	.89	.94	.97
Nov. 25	.15	.28	.37	.41	.46	.53	.58	.63	.65	.66	.71	.77
Binghamton												
June 24	.22	.34	.44	.54	.64	.73	.81	.83	.83	.83	.83	.83
June 24	.24	.41	.46	.48	.48	.48	.48	.48	.48	.48	.48	.48
Aug. 3	.36	.48	.58	.60	.61	.62	.62	.62	.62	.62	.62	.62
Buffalo AP												
June 16	.46	.67	.81	.84	.84	.85	.86	.86	.86	.86	.86	.86
Canton												
Aug. 27	.27	.47	.54	.61	.64	.67	.68	.68	.68	.68	.68	.71
Aug. 28	.20	.30	.42	.55	.65	.71	.72	.73	.82	1.13	1.22	1.23
LaGuardia Field AP												
June 4	.29	.40	.49	.52	.54	.56	.58	.63	.66	.69	.75	.79
July 10	.20	.32	.43	.52	.64	.93	1.13	1.31	1.39	1.44	1.62	1.71
Aug. 29	.32	.56	.56	.56	.57	.58	.62	.76	.89	1.03	1.06	1.08
Oct. 12	.25	.41	.44	.45	.46	.48	.48	.48	.49	.49	.49	.49
Nov. 4-5	.25	.50	.75	.95	1.32	1.62	1.97	2.12	2.14	2.22	2.34	2.35
New York												
July 5	.16	.30	.42	.47	.55	.76	.82	.86	.87	.88	.88	.88
July 11	.19	.31	.43	.48	.57	.62	.75	.82	.82	.82	.82	.82
July 16	.28	.30	.32	.33	.35	.37	.37	.37	.37	.37	.37	.37
Aug. 20	.18	.31	.45	.58	.72	.89	1.21	1.28	1.28	1.28	1.36	1.41
Nov. 4	.20	.33	.42	.46	.52	.57	.60	.61	.61	.61	.61	.61
Nov. 4	.12	.25	.32	.38	.50	.62	.67	.72	.73	.77	.81	.81
Oswego												
June 24	.33	.57	.74	.75	.77	.83	1.09	1.12	1.12	1.12	1.12	1.12
July 11	.25	.33	.36	.37	.37	.38	.38	.38	.38	.38	.38	.39
July 17	.32	.41	.46	.48	.53	.57	.58	.59	.59	.59	.59	.59
Aug. 29	.39	.57	.68	.86	.94	.96	.96	.96	.96	.96	.96	.96
Rochester												
June 23	.49	.85	1.33	1.53	2.29	2.53	2.55	2.56	2.56	2.53	2.56	2.56
Syracuse												
Mar. 27	.22	.36	.42	.45	.52	.62	.71	.81	.87	.93	1.03	1.18
Aug. 28	.15	.23	.33	.39	.53	.76	.83	.84	.85	.86	.86	.86
Sept. 10	.15	.28	.31	.37	.51	.74	.90	1.12	1.31	1.50	1.63	1.67
Oct. 10	.22	.39	.45	.48	.59	.64	.68	.71	.76	.81	.89	.95
NORTH CAROLINA												
Asheville												
April 28	.33	.63	.78	.86	.88	.90	.94	.99	.99	.99	.99	.99
May 30	.25	.28	.28	.29	.37	.38	.38	.68	.71	.71	.71	.72
July 5	.36	.45	.46	.47	.47	.47	.47	.47	.47	.47	.51	.54
August 19	.22	.38	.49	.52	.54	.55	.57	.59	.61	.62	.62	.62
Charlotte												
May 2	.40	.53	.56	.59	.66	.74	.79	.80	.81	.81	.83	.83
June 14	.28	.50	.65	.85	1.18	1.44	1.48	1.49	1.49	1.49	1.49	1.49
July 14	.31	.43	.50	.51	.51	.79	.95	.95	.96	.98	.98	.98
July 18	.21	.31	.32	.32	.32	.33	.33	.35	.34	.36	.36	.37
Aug. 31	.31	.38	.43	.48	.54	.54	.54	.54	.57	.59	.59	.59
Greensboro												
May 11	.33	.54	.63	.69	.71	.74	.76	.81	.83	.89	1.10	1.51
June 4	.24	.34	.34	.34	.34	.35	.35	.35	.35	.35	.35	.35
June 21	.33	.57	.81	.96	1.12	1.14	1.16	1.17	1.18	1.23	1.27	1.29
June 29	.23	.37	.45	.50	.52	.55	.56	.57	.57	.57	.57	.57
June 29	.25	.39	.46	.51	.54	.56	.58	.63	.67	.71	.71	.71
July 11	.23	.40	.52	.53	.58	.73	.88	.88	.90	.91	.91	.91
July 27	.13	.21	.29	.37	.50	.68	.69	.69	.69	.70	.72	.82
July 28	.21	.36	.43	.45	.53	.56	.56	.57	.63	.64	.66	.67
Aug. 18	.23	.35	.48	.51	.56	.57	.57	.57	.57	.57	.59	.71
Aug. 29	.24	.45	.49	.50	.51	.52	.52	.52	.52	.52	.52	.52
Sept. 10	.27	.40	.43	.46	.48	.49	.49	.52	.52	.53	.53	.54
Nov. 3-4	.21	.33	.39	.42	.45	.51	.75	.82	.86	.86	.87	.87
Hatteras												
Apr. 20	.36	.40	.41	.41	.41	.41	.47	.52	.52	.52	.52	.52
June 11	.32	.46	.79	.88	1.06	1.40	1.55	1.61	1.66	1.80	2.03	2.12

EXCESSIVE SHORT DURATION RAINFALL

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
NORTH CAROLINA (Cont.)												
Hatteras (Cont.)												
June 20	0.27	0.30	0.31	0.32	0.38	0.52	0.60	0.83	0.85	0.85	0.85	0.85
June 21	.25	.47	.57	.60	.61	.62	.62	.62	.62	1.01	1.20	1.20
June 22	.44	.57	.57	.57	.57	.57	.57	.57	.57	.57	.57	.57
June 25	.29	.31	.34	.39	.43	.43	.43	.43	.43	.43	.43	.43
June 26	.67	.91	1.15	1.38	1.51	1.56	1.57	1.60	1.61	1.62	1.63	1.63
July 6	.27	.41	.46	.52	.57	.61	.62	.62	.62	.62	.63	.66
July 9	.18	.30	.43	.63	.85	1.02	1.05	1.05	1.05	1.07	1.12	1.13
July 15	.32	.40	.42	.42	.44	.48	.55	.55	.55	.55	.59	.60
July 22	.19	.35	.38	.38	.38	.38	.38	.39	.39	.39	.39	.39
July 27	.25	.39	.49	.53	.57	.73	.78	.84	.89	.95	1.02	1.07
Aug. 4	.53	.93	1.26	1.53	1.70	1.89	1.91	1.93	1.94	1.94	1.94	1.94
Sept. 22	.19	.36	.48	.59	.71	.71	.71	.71	.71	.71	.71	.71
Oct. 9	.21	.34	.40	.49	.65	.89	1.10	1.36	1.66	2.04	2.43	2.50
Dec. 4	.28	.44	.64	.80	.94	1.06	1.25	1.45	1.51	1.55	1.59	1.72
Raleigh												
Apr. 30	Excessive precipitation between 1557 and 1800 but register not operating.											
May 12	.30	.38	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40
May 14	.28	.39	.47	.52	.62	.71	.85	1.07	1.25	1.41	1.51	1.52
May 28	.18	.37	.42	.43	.44	.44	.44	.44	.44	.44	.44	.44
June 14	.24	.36	.45	.52	.65	.68	.68	.68	.68	.68	.68	.68
June 22	.24	.48	.67	.74	.75	.75	.75	.75	.75	.75	.77	.77
June 25	.33	.43	.47	.48	.48	.48	.48	.48	.48	.48	.48	.48
June 25	.30	.44	.53	.62	.78	.86	.87	.88	.88	.88	.88	.88
June 29	.40	.72	.89	1.01	1.02	1.03	1.04	1.04	1.04	1.04	1.04	1.04
June 29	.52	.90	1.14	1.18	1.30	1.43	1.49	1.51	1.51	1.51	1.55	1.57
July 5	.21	.29	.44	.51	.59	.78	.83	.87	.92	.96	1.11	1.16
July 6	.26	.43	.47	.53	.59	.61	.66	.71	.73	.74	.77	.77
Aug. 11	.26	.46	.50	.51	.51	.51	.51	.51	.51	.51	.51	.51
Aug. 31	.21	.32	.38	.41	.46	.47	.47	.47	.47	.47	.47	.47
Sept. 4	.29	.45	.63	.73	.89	1.01	1.15	1.15	1.15	1.15	1.15	1.16
Sept. 12	.20	.32	.39	.43	.57	.63	.66	.67	.69	.73	.75	.75
Sept. 22	.31	.47	.54	.58	.58	.58	.58	.58	.58	.58	.58	.58
Dec. 7	.20	.36	.43	.44	.50	.58	.63	.71	.74	.76	.77	.78
Wilmington												
‡Apr. 4	.20	.25	.30	.40	.40	.54	.60	.61	.62	.62	.62	.62
May 1	.22	.44	.49	.58	.65	.65	.70	.76	.78	.89	.95	1.00
June 4	.47	.69	1.05	1.33	1.76	1.94	2.06	2.11	2.44	3.02	3.17	3.26
June 15	.26	.46	.66	.70	.71	.71	.71	.71	.71	.71	.71	.71
June 17	.50	.70	.82	.91	.93	.94	.94	.94	.94	.94	.94	.94
July 6	.23	.26	.39	.39	.39	.41	.41	.42	.43	.47	.47	.48
July 7	.32	.54	.77	.93	1.35	1.83	2.21	2.49	2.62	2.89	3.12	3.87
July 24	.38	.66	.82	.95	1.32	1.71	1.93	2.05	2.08	2.08	2.08	2.08
Aug. 21	.50	.81	.99	1.22	1.63	1.78	1.78	1.79	1.80	1.80	1.80	1.80
Oct. 9	.22	.35	.35	.35	.36	.39	.45	.46	.48	.48	.48	.48
Oct. 24	.18	.32	.39	.45	.48	.50	.50	.50	.50	.50	.50	.50
Nov. 24	.19	.32	.47	.57	.76	.79	.82	.87	.91	.95	.99	1.00
NORTH DAKOTA												
Bismarck AP												
Sept. 17	.25	.35	.42	.45	.46	.48	.49	.49	.49	.49	.49	.49
Devils Lake												
July 14	.25	.31	.44	.51	.57	.58	.59	.60	.61	.61	.65	.65
Fargo AP												
June 12	.25	.32	.45	.55	.60	.61	.61	.61	.61	.61	.61	.61
June 25	.51	.60	.70	.75	.79	.82	.82	.82	.82	.82	.82	.82
Williston												
June 12	.49	.80	.92	.99	1.02	1.04	1.04	1.04	1.04	1.04	1.04	1.04
June 29	.27	.43	.44	.47	.65	.77	.85	.98	1.08	1.52	1.57	1.57
OHIO												
Cincinnati												
Jan. 15	.25	.36	.40	.41	.43	.49	.56	.62	.67	.75	.75	.75
Apr. 3	.10	.22	.29	.40	.54	.60	.66	.71	.80	.85	.91	.97
June 15	.33	.60	.77	.87	1.02	1.04	1.04	1.06	1.10	1.12	1.12	1.12
June 25	.16	.30	.36	.38	.38	.38	.38	.38	.38	.38	.38	.38
July 13	.46	.53	.56	.59	.62	.62	.63	.64	.65	.65	.65	.65
July 19	.19	.43	.64	.70	.72	.74	.76	.79	.81	.82	.82	.82
Sept. 2	.34	.61	.81	.88	1.12	1.43	1.69	2.01	2.36	2.60	2.65	2.67
Sept. 12	.17	.30	.39	.43	.45	.57	.60	.60	.60	.62	.65	.70
Sept. 21	.24	.38	.47	.51	.55	.59	.61	.63	.63	.63	.63	.63
Cleveland AP												
May 22	.63	.65	.68	.70	.80	.93	.98	.98	.98	.98	.98	.98
May 31	.25	.30	.38	.43	.43	.43	.43	.43	.43	.43	.43	.43
June 3	.25	.30	.43	.43	.43	.43	.44	.50	.76	.86	1.13	1.25
July 17	.27	.28	.30	.33	.33	.34	.53	.55	.55	.55	.55	.55
July 19	.25	.35	.45	.65	.88	1.00	1.25	1.38	1.63	1.84	1.91	2.08
Sept. 12	.45	.45	.45	.45	.45	.45	.45	.45	.45	.45	.45	.45
Columbus												
Apr. 23	.22	.40	.47	.49	.50	.52	.56	.57	.58	.59	.60	.60
Aug. 9	.14	.25	.32	.42	.58	.65	.82	.87	.92	.93	.94	.95
Aug. 18	.30	.37	.41	.42	.43	.44	.44	.47	.48	.48	.48	.49
Aug. 30	.23	.37	.50	.57	.63	.73	.77	.80	.81	.83	.84	.86
Sept. 21	.28	.37	.42	.45	.49	.55	.89	.97	1.01	1.01	1.22	1.23
Dayton AP												
Apr. 23	.53	.61	.62	.63	.65	.68	.71	.75	.82	.94	.95	.95
May 21-22	.17	.27	.32	.41	.56	.78	.85	.87	.97	.98	1.00	1.04
June 9	.19	.35	.43	.47	.50	.52	.55	.59	.61	.64	.64	.64
June 15	.29	.43	.50	.53	.91	1.00	1.03	1.04	1.05	1.05	1.05	1.05
June 16	.22	.39	.46	.48	.51	.52	.53	.54	.55	.55	.55	.55
June 24	.36	.51	.53	.53	.53	.55	.55	.55	.55	.55	.55	.55
July 17	.29	.44	.47	.64	.89	1.13	1.27	1.36	1.46	1.48	1.48	1.48
Aug. 28	.41	.67	.91	.99	1.03	1.40	1.45	1.47	1.64	1.70	1.72	1.75
Sept. 21	.41	.71	.93	.97	.98	.99	.99	.99	1.01	1.05	1.15	1.23
Sandusky												
Jan. 3	.36	.46	.48	.48	.50	.56	.62	.62	.64	.65	.68	.88
June 24	.25	.31	.34	.36	.36	.39	.39	.40	.40	.40	.40	.40
Sept. 1	.23	.41	.53	.67	.85	1.26	1.47	1.57	1.70	1.81	2.16	2.27
Sept. 10	.20	.37	.50	.60	.66	.67	.67	.67	.68	.68	.68	.68
Sept. 12	.30	.60	.77	.85	.90	1.00	1.04	1.09	1.15	1.22	1.25	1.25
Toledo												
June 24	.25	.47	.62	.66	.69	1.01	1.14	1.38	1.84	1.96	2.00	2.02
July 17	.23	.34	.35	.36	.43	.48	.62	.68	.72	.75	.77	.78

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
OHIO (Cont.)												
Toledo (Cont.)												
July 24	.19	.30	.33	.33	.33	.33	.33	.33	.36	.36	.36	.36
Aug. 16	.23	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
Sept. 10	.45	.74	.77	.93	.98	.98	.99	1.00	1.00	1.00	1.00	1.00
Sept. 12	.25	.49	.58	.68	.71	.72	.74	.76	.88	.91	.94	.97
Sept. 12	.14	.28	.37	.50	.64	.66	.70	.80	.80	.80	.80	.80
Oct. 9	.25	.33	.41	.47	.58	.71	.89	1.09	1.15	1.19	1.29	1.33
Youngstown						None						
OKLAHOMA												
Oklahoma City												
May 9	.34	.60	.62	.71	.90	.91	.91	1.31	1.32	1.35	1.36	1.36
May 10	.21	.30	.35	.35	.58	.68	.76	1.07	1.18	1.23	1.25	1.25
May 17-18	.16	.31	.41	.45	.54	.83	.92	.95	.96	.98	1.03	1.09
May 28	.19	.30	.34	.35	.37	.42	.48	.48	.48	.48	.48	.48
June 10	.27	.47	.66	.77	1.00	1.10	1.11	1.17	1.21	1.22	1.24	1.24
June 20	.30	.45	.52	.66	.85	.94	.94	.95	.95	.95	.95	.95
July 19	.18	.34	.46	.52	.65	.78	.92	1.08	1.10	1.19	1.32	1.34
July 21	.26	.41	.58	.87	1.08	1.16	1.18	1.23	1.26	1.33	1.39	1.43
July 29	.20	.32	.41	.44	.46	.50	.54	.56	.57	.58	.58	.58
Aug. 15	.23	.38	.41	.42	.43	.48	.63	.79	.87	.87	.88	.93
Aug. 23	.33	.59	.68	.80	.90	.93	.95	.96	.97	.97	.97	.97
Sept. 12	.26	.39	.40	.40	.40	.41	.41	.41	.41	.41	.41	.41
Oct. 2	.24	.45	.63	.77	1.00	1.15	1.40	1.48	1.53	1.56	1.83	1.89
Tulsa AP												
Mar. 11	.32	.42	.58	.65	.69	.71	.71	.71	.72	.75	.75	.75
May 26	.35	.57	.80	.89	1.07	1.32	1.46	1.56	1.60	1.62	1.64	1.64
June 10	.44	.84	1.08	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
July 3	.30	.46	.51	.56	.66	.72	.72	.72	.72	.72	.72	.72
July 5	.65	.90	1.12	1.29	1.52	1.55	1.55	1.55	1.55	1.55	1.55	1.55
July 12	.22	.42	.51	.56	.68	.80	.87	----	----	1.00	1.00	1.00
July 29	.25	.44	.56	.58	.59	.60	.81	1.10	1.10	1.12	1.14	1.14
July 31	.25	.36	.40	.42	.44	.44	.44	.44	.44	.44	.44	.47
OREGON												
Baker						None						
Meacham						None						
Portland						None						
Roseburg						None						
PENNSYLVANIA												
Erie												
May 10	.24	.32	.33	.34	.35	.38	.43	.56	.57	.57	.57	.58
May 31	.13	.22	.30	.36	.53	.62	.76	.77	.88	.94	.99	1.00
June 10	.22	.32	.37	.41	.47	.50	.52	.60	.65	.66	.66	.66
July 5	.23	.38	.43	.51	.66	.69	.70	.70	.70	.70	.70	.70
July 13	.34	.37	.41	.42	.43	.44	.45	.45	.45	.45	.45	.45
July 24	.23	.35	.41	.43	.45	.48	.48	.48	.48	.48	.48	.48
July 24	.25	.48	.55	.58	.61	.61	.61	.62	.62	.62	.62	.62
Aug. 2	.16	.28	.35	.39	.43	.44	.45	.46	.46	.47	.48	.48
Aug. 26-27	.16	.24	.38	.46	.51	.52	.52	.53	.53	.53	.53	.53
Aug. 28-29	.30	.35	.38	.47	.67	.79	.79	.79	.79	.80	.81	.87
Sept. 1	.20	.29	.33	.43	.52	.67	.86	1.08	1.25	1.33	1.42	1.54
Harrisburg						None						
Philadelphia												
July 5	.23	.32	.32	.32	.35	.36	.50	.52	.54	.56	.56	.56
July 10	.17	.30	.34	.37	.47	.60	.75	.92	1.11	1.19	1.45	1.62
Aug 3	.15	.25	.35	.45	.60	.75	1.40	1.69	1.83	2.25	2.65	2.99
Aug. 20	.21	.39	.56	.70	.79	.94	1.04	1.09	1.12	1.13	1.13	1.13
Sept. 10	.18	.26	.28	.40	.48	.53	.74	.81	.85	.88	.91	.92
Nov. 4	.20	.34	.54	.57	.65	.76	.83	.87	.87	.88	.89	.89
Pittsburgh												
May 5	.80	.64	.90	1.14	1.33	1.72	1.81	1.89	1.94	2.04	2.07	2.10
May 27	.28	.40	.51	.53	.58	.65	.72	.76	.78	.78	.78	.78
June 3	.35	.45	.53	.65	.78	.93	1.02	1.27	1.30	1.44	1.48	1.54
June 24	.50	.76	1.00	1.23	1.40	1.88	2.00	2.02	2.06	2.07	2.10	2.12
Reading												
June 10	.30	.39	.40	.40	.42	.43	.44	.44	.44	.44	.44	.44
Aug. 9	.20	.27	.35	.40	.43	.55	.58	.60	.65	.67	.69	.69
Sept. 10	.17	.33	.40	.41	.41	.42	.43	.43	.45	.46	.49	.49
Nov. 25	.13	.25	.33	.45	.64	.88	1.14	1.43	1.61	1.75	1.93	2.14
Scranton												
June 10	.23	.39	.41	.43	.57	.79	.82	.85	.88	.88	.88	.89
July 11	.27	.37	.44	.47	.63	.75	.82	.83	.83	.83	.84	.88
July 13	.21	.33	.50	.53	.53	.53	.64	.79	.82	.82	.83	.92
RHODE ISLAND												
Block Island	No excessive precipitation through Aug. Triple register removed Aug. 31, 1950.											
Providence AP												
June 17	.25	.31	.38	.40	.43	.46	.46	.46	.46	.46	.46	.46
July 1	.22	.37	.40	.43	.50	.51	.51	.51	.51	.51	.51	.51
Aug. 19	.31	.44	.48	.52	.54	.78	.83	.86	.86	.86	.86	.86
Aug. 20	.51	.59	.59	.59	.59	.62	.62	.64	.65	.65	.66	.66
Nov. 5	.15	.26	.39	.42	.47	.56	.58	.64	.71	.78	.82	.89
Nov. 21	.20	.27	.33	.44	.53	.82	1.10	1.25	1.36	1.42	1.52	1.60
SOUTH CAROLINA												
Charleston												
Jan. 27	.16	.27	.36	.41	.43	.44	.44	.45	.47	.47	.47	.47
May 19	.25	.32	.32	.34	.35	.36	.36	.36	.36	.36	.37	.37
May 31	.37	.45	.51	.52	.53	.53	.53	.54	.54	.54	.54	.54
June 4	.30	.49	.57	.58	.60	.61	.61	.61	.61	.61	.61	.61
July 5	.21	.41	.54	.65	.67	.68	.68	.68	.69	.72	.75	.75
July 7	.22	.34	.48	.61	.77	.92	1.14	1.35	1.64	1.79	2.07	2.13
July 8	.45	.80	1.07	1.34	1.80	2.44	2.92	3.29	3.62	3.73	3.81	3.94
July 25	.29	.30	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32
Aug. 11	.28	.46	.61	.75	.93	.94	.96	.97	.99	1.03	1.06	1.08
Aug. 13	.43	.76	1.00	1.33	1.83	1.97	2.02	2.05	2.05	2.05	2.05	2.05
Sept. 7	.25	.33	.34	.38	.41	.55	.65	.83	.84	.94	1.26	1.48
Dec. 3	.27	.47	.66	.77	.79	1.00	1.05	1.16	1.24	1.24	1.41	1.42

‡ Estimated, tipping bucket not working properly.

EXCESSIVE SHORT DURATION RAINFALL

Table 8—Continued

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
SOUTH CAROLINA (Cont.)												
Columbia												
Jan. 28	0.20	0.28	0.39	0.43	0.46	0.56	0.66	0.94	1.04	1.14	1.22	1.27
Apr. 27	.30	.41	.45	.64	.87	.93	.98	.98	1.07	1.12	1.13	1.13
May 28	.28	.50	.65	.76	.90	1.06	1.12	1.14	1.20	1.29	1.47	2.06
June 4	.17	.28	.39	.45	.50	.53	.54	.56	.56	.56	.56	.56
June 29	.35	.54	.65	.71	.72	.81	1.05	1.19	1.25	1.25	1.27	1.27
July 5	.25	.47	.65	.80	1.02	1.13	1.18	1.53	1.63	1.66	1.71	1.73
July 6	.29	.46	.59	.64	.68	.70	.78	1.00	1.12	1.48	1.62	1.65
July 15	.25	.42	.59	.80	1.10	1.35	1.43	1.46	1.68	1.76	1.81	1.83
July 27	.27	.46	.58	.67	1.00	1.01	1.03	1.03	1.03	1.03	1.04	1.04
Aug. 11	.33	.53	.66	.70	.72	.76	.77	.78	.78	.78	.78	.78
Aug. 17	.15	.28	.38	.45	.50	.57	.57	.57	.57	.57	.57	.57
Aug. 30	.12	.24	.36	.41	.49	.57	.62	.62	.63	.63	.63	.63
Sept. 17	.13	.28	.37	.43	.51	.53	.54	.54	.54	.55	.55	.55
Greenville AP												
Mar. 13	.33	.43	.48	.50	.52	.53	.54	.54	.54	.56	.57	.58
May 30	.20	.39	.47	.54	.55	.59	.59	.62	.92	1.00	1.05	1.12
June 3	.26	.35	.46	.53	.57	.58	.60	.60	.60	.61	.62	.62
July 11	.30	.43	.53	.66	.75	.85	1.00	1.00	1.02	1.02	1.02	1.02
July 14	.42	.74	.85	.85	.88	1.03	1.24	1.32	1.75	2.15	2.27	2.56
July 15	.40	.53	.68	.73	.78	.84	.88	.88	.90	.90	.91	.92
July 27	.35	.54	.58	.64	.88	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Aug. 25	.27	.33	.38	.40	.40	.40	.40	.40	.40	.40	.40	.40
Oct. 20	.12	.24	.29	.38	.48	.73	.88	1.10	1.28	1.39	1.72	2.03
SOUTH DAKOTA												
Huron												
July 7	.16	.31	.41	.50	.60	.73	.95	1.07	1.15	1.16	1.35	1.41
Rapid City												
May 23	.19	.31	.37	.39	.40	.40	.40	.40	.40	.40	.40	.40
Aug. 9	.63	.82	.82	.88	.93	.94	.95	.95	.95	.95	.95	.95
TENNESSEE												
Chattanooga AP												
Mar. 12	.25	.46	.58	.65	.74	.84	.91	1.10	1.18	1.22	1.27	1.27
Mar. 27	.37	.45	.46	.50	.70	.82	.85	.93	.99	1.07	1.17	1.21
May 19	.19	.33	.39	.49	.59	.60	.61	.61	.61	.61	.61	.61
May 30	.20	.33	.38	.44	.49	.52	.52	.55	.58	.58	.58	.58
June 2	.23	.37	.53	.67	.86	.91	.97	1.00	1.06	1.11	1.11	1.11
June 22	.29	.38	.57	.58	.58	.70	.70	.71	.71	.71	.71	.71
July 5	.28	.46	.59	.68	.77	.79	.79	.79	.79	.79	.79	.79
July 16	.26	.30	.30	.31	.31	.31	.31	.31	.31	.31	.31	.31
July 16	.30	.51	.61	.64	.70	1.07	1.22	1.23	1.24	1.24	1.24	1.24
July 17	.31	.34	.45	.50	.53	.56	.56	.56	.56	.56	.56	.56
July 23	.21	.40	.52	.55	.60	.65	.83	.86	.91	.94	.97	.98
July 26	.73	1.08	1.40	1.69	1.69	1.94	2.03	2.09	2.15	2.21	2.29	2.39
July 30	.22	.35	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37
Sept. 10	.27	.46	.54	.59	.68	.72	.72	.72	.72	.72	.72	.72
Nov. 20	.18	.31	.41	.51	.59	.68	.73	.81	.82	.82	.82	.82
Knoxville												
May 30	.30	.33	.35	.36	.38	.40	.44	.47	.47	.47	.50	.59
July 16	.24	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40
July 18	.28	.34	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37
July 20	.23	.30	.31	.31	.31	.37	.38	.40	.42	.43	.43	.66
July 23	.30	.45	.49	.51	.53	.60	.87	.91	.93	.95	.99	1.00
Nashville												
Feb. 9	.20	.32	.42	.46	.50	.72	.87	1.20	1.36	1.38	1.72	2.07
Feb. 14	.18	.29	.38	.41	.45	.52	.54	.73	.80	.81	.83	1.14
July 4	.14	.22	.33	.38	.50	.73	.81	.92	.92	.92	.92	.92
July 5	.41	.79	1.16	1.41	1.87	2.22	2.67	2.82	2.89	2.98	3.11	3.22
Aug. 14	.28	.38	.43	.45	.48	.50	.54	.60	.63	.64	.65	.66
Aug. 18	.21	.32	.37	.38	.39	.39	.39	.39	.39	.39	.39	.39
Nov. 2	.22	.30	.42	.52	.67	.77	.93	1.01	1.11	1.18	1.39	1.40
Nov. 20	.17	.24	.33	.40	.57	.69	.73	.78	.86	.92	.98	1.01
TEXAS												
Abilene												
Apr. 28	.18	.27	.34	.44	.57	.61	.62	.62	.62	.62	.62	.6
May 1	.17	.30	.37	.41	.42	.44	.45	.47	.47	.47	.47	.47
May 13	.24	.32	.33	.40	.42	.42	.45	.51	.52	.55	.55	.55
May 25	.26	.51	.74	.83	.85	.89	.90	.92	.94	.94	1.08	1.24
May 26	.19	.29	.32	.40	.47	.48	.49	.49	.50	.53	.54	.55
June 2	.45	.53	.55	.56	.57	.57	.57	.57	.57	.57	.57	.57
July 6	.42	.72	.90	1.03	1.32	1.42	1.43	1.45	1.45	1.47	1.48	1.50
July 12	.38	.73	.93	1.03	1.16	1.27	1.32	1.34	1.35	1.35	1.35	1.35
July 13	.23	.37	.53	.62	.71	.75	.80	.92	1.01	1.06	1.08	1.08
July 14	.21	.36	.50	.62	.74	1.01	1.13	1.17	1.17	1.17	1.20	1.22
July 23	.25	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32
July 27	.25	.33	.36	.39	.44	.45	.48	.50	.50	.51	.53	.53
Aug. 1	.28	.48	.65	.86	1.14	1.22	1.23	1.26	1.26	1.27	1.27	1.27
Aug. 2	.27	.41	.49	.61	.75	.92	1.16	1.37	1.56	1.65	1.95	2.13
Aug. 17	.23	.39	.40	.40	.40	.41	.42	.43	.43	.43	.43	.43
Sept. 5	.21	.33	.43	.53	.66	.70	.75	.77	.78	.79	.80	.80
Sept. 14	.19	.29	.36	.39	.40	.48	.57	.59	.64	.64	.64	.65
Amarillo												
July 3	.29	.49	.55	.57	.63	.89	1.00	1.50	1.63	1.67	1.72	1.72
July 5	---	.34	.50	.62	.70	.73	.80	.80	.80	.80	.80	.80
July 25	---	.38	.50	.56	.65	.70	.70	.70	.70	.70	.70	.70
July 27	.15	.30	.41	.44	.47	.53	.55	.55	.55	.55	.55	.55
Aug. 15	.27	.45	.68	.86	1.02	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Aug. 26	.22	.35	.48	.58	.68	.80	1.03	1.33	1.54	1.60	1.75	1.75
Aug. 29	.17	.29	.35	.39	.48	.51	.54	.58	.62	.72	.84	1
Sept. 5	.39	.49	.50	.50	.50	.51	.54	.55	.56	.59	.58	.59
Sept. 25	.30	.55	.63	.66	.73	.78	.81	.83	.85	.86	.86	.86
Austin												
Feb. 12	.31	.56	.87	1.05	1.34	1.67	1.75	1.79	1.80	1.80	1.84	1.84
Apr. 16	.15	.29	.36	.40	.55	.66	.74	.79	.86	.87	.93	1.07
Apr. 23	.46	.92	1.22	1.40	1.59	1.70	1.88	1.96	1.99	2.00	2.14	2.28
Apr. 29	.33	.63	.84	.95	1.19	1.53	1.59	1.73	1.79	1.85	1.86	1.87
May 19	.25	.37	.47	.63	.78	.90	.90	.90	.90	.91	.92	.92
May 31 - June 1	.40	.70	1.00	1.24	1.48	1.58	1.63	1.67	1.74	1.78	1.85	1.87
June 5	.55	.80	.83	.83	.83	.83	.84	.84	.84	.84	.84	.85
Sept. 10	.31	.51	.74	.88	1.09	1.21	1.21	1.22	1.65	1.91	1.94	1.94
Sept. 16	.21	.36	.52	.64	.79	.87	.93	.94	.97	1.01	1.06	1.10

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
TEXAS (Cont.)												
Brownsville												
May 14	0.14	0.24	0.31	0.37	0.69	0.73	0.74	0.75	0.75	0.75	0.75	0.75
‡June 2							1.33			2.66		3.99
Sept. 25	.28	.49	.59	.63	.66	.68	.68	.68	.68	.68	.68	.68
Sept. 26	.16	.25	.35	.40	.42	.42	.43	.45	.45	.46	.46	.46
Sept. 28	.29	.48	.57	.61	.85	.95	.98	.98	.98	.98	.98	.98
Oct. 3	.28	.44	.49	.49	.49	.58	.59	.62	.64	.79	.79	.89
Corpus Christi												
Feb. 12	.21	.42	.62	.79	1.11	1.26	1.30	1.34	1.37	1.38	1.53	1.60
Apr. 17	.48	.83	.97	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Apr. 23	.23	.31	.35	.43	.61	.68	.68	.76	1.17	1.24	1.24	1.25
May 11	.34	.43	.52	.57	.65	.66	.68	.69	.70	.71	.71	.71
July 1	.36	.57	.72	.76	.82	.89	.92	.94	.95	1.14	1.23	1.31
Sept. 17	.23	.42	.57	.71	1.03	1.43	1.75	1.89	2.30	2.39	2.41	2.41
Sept. 23	.14	.24	.34	.42	.44	.46	.46	.46	.47	.47	.47	.47
Dallas AP												
Feb. 12	.18	.33	.42	.50	.63	.74	.81	.89	.91	.92	.92	.93
Mar. 12	.25	.32	.42	.55	.76	1.07	1.17	1.36	1.62	1.65	1.83	1.96
Apr. 28	.17	.33	.43	.52	.68	.88	.91	.91	.92	.92	.92	.92
Apr. 29	.17	.29	.33	.38	.59	.74	.76	.77	.77	.77	.78	.78
May 1	.25	.42	.53	.63	.92	1.04	1.29	1.43	1.47	1.49	1.57	1.73
May 13	.17	.26	.32	.39	.49	.78	.94	1.07	1.23	1.32	1.41	1.50
May 29	.24	.40	.48	.52	.57	.58	.59	.60	.60	.62	.62	.62
June 21	.26	.48	.67	.82	1.06	1.33	1.42	1.45	1.49	1.53	1.53	1.68
Aug. 17	.17	.29	.36	.37	.38	.38	.38	.38	.38	.38	.38	.38
Aug. 22	.18	.29	.38	.43	.55	.62	.65	.82	1.03	1.09	1.15	1.21
Aug. 27	.19	.35	.49	.64	.76	.90	.95	1.00	1.03	1.05	1.09	1.11
Sept. 4	.31	.52	.60	.69	.79	.83	.86	.92	.98	.99	1.00	1.00
Del Rio												
Sept. 22	.26	.43	.55	.62	.78	.95	.96	.96	.96	.96	.96	.96
El Paso AP												
July 29	.17	.32	.46	.52	.53	.53	.53	.53	.53	.53	.54	.54
Fort Worth AP												
Jan. 12			.33	.40	.53	.67	.87	1.11	1.29	1.53	1.64	1.92
Mar. 12			.55	.60	.90	1.04	1.12	1.25	1.26	1.26	1.28	1.31
Apr. 19			.47	.49	.56	.57	.59	.60	.61	.66	1.09	1.14
May 1			.80	.88	1.05	1.11	1.24	1.31	1.34	1.48	1.65	1.75
May 13			.53	.67	.79	.83	.86	.90	.93	.96	.97	.97
May 29			.28	.34	.55	.66	.69	.69	.69	.69	.69	.70
June 21			.38	.40	.41	.41	.43	.68	.80	.84	.85	.87
June 29			.54	.61	.73	.75	.79	.80	.85	.92	1.01	1.10
July 8			.37	.40	.46	.49	.50	.50	.50	.50	.50	.50
Aug. 22			.50	.61	.65	.67	.94	1.02	1.29	1.35	1.42	1.52
Sept. 19			.67	.70	.76	.93	1.27	1.29	1.30	1.43	1.44	1.46
Galveston												
Apr. 17	.32	.54	.72	.93	1.20	1.39	1.48	1.70	1.79	1.86	2.28	2.29
Apr. 23	.18	.29	.41	.54	.81	1.11	1.19	1.22	1.24	1.29	1.61	1.70
May 13-14	.40	.65	.84	.96	1.24	1.42	1.46	1.51	1.51	1.51	1.51	1.51
June 3	.53	.90	1.36	1.59	1.92	2.53	3.18	3.42	3.88	4.87	5.71	6.12
June 20	.34	.52	.62	.68	.75	.97	1.00	1.17	1.22	1.28	1.76	1.91
June 30	.34	.53	.71	.82	1.01	1.10	1.12	1.12	1.12	1.12	1.12	1.12
July 25	.19	.34	.39	.40	.41	.47	.62	.84	.88	.91	.91	.92
Aug. 29	.33	.50	.61	.83	.95	1.02	1.04	1.05	1.05	1.05	1.05	1.05
Sept. 17	.23	.33	.38	.47	.62	.66	.67	.74	.76	.77	.77	.77
Sept. 18	.20	.31	.42	.55	.80	1.00	1.01	1.05	1.06	1.08	1.08	1.08
Sept. 18	.33	.66	.89	.92	1.10	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Nov. 16	.23	.35	.41	.43	.53	.55	.57	.57	.58	.58	.58	.58
Houston												
Jan. 1	.30	.52	.71	.84	1.09	1.53	1.79	2.06	2.36	2.45	2.61	2.75
Feb. 21	.31	.45	.53	.59	.68	.77	.97	1.12	1.17	1.26	1.30	1.30
Feb. 22	.16	.31	.37	.40	.48	.69	.71	.71	.71	.71	.71	.71
Apr. 16	.17	.31	.39	.56	.69	.80	.93	.99	1.01	1.10	1.14	1.19
Apr. 29	.47	.83	1.17	1.49	2.09	2.68	2.76	2.81	2.82	2.82	2.83	2.84
May 20	.40	.71	.93	1.10	1.45	1.61	1.68	1.72	1.76	1.79	1.86	1.90
June 2	.31	.61	.79	.94	1.11	1.20	1.31	1.31	1.42	1.53	1.72	2.07
June 5	.30	.50	.56	.59	.64	.74	.79	.82	.91	.98	1.02	1.03
June 12	.24	.36	.42	.46	.48	.48	.49	.49	.49	.49	.49	.49
July 13	.37	.64	.93	1.22	1.70	2.05	2.08	2.10	2.10	2.10	1.10	2.10
July 28	.34	.50	.52	.53	.54	.54	.54	.54	.54	.54	.54	.80
Sept. 14	.17	.33	.43	.51	.59	.59	.60	.60	.60	.60	.60	.60
Sept. 20	.18	.33	.48	.56	.60	.65	.71	.75	.77	.77	.77	.77
Nov. 16	.27	.34	.61	.69	.72	.77	.78	.81	.86	1.74	1.88	1.89
Nov. 16	.53	.84	.98	1.02	1.07	1.08	1.08	1.08	1.08	1.74	1.88	1.89
Dec. 2	.29	.38	.39	.40	.40	.47	.47	.47	.47	.47	.47	.47
Fort Arthur												
Feb. 12	.22	.30	.31	.32	.46	.64	.79	1.00	1.18	1.45	1.62	1.69
Mar. 13	.27	.36	.38	.38	.45	.47	.50	.68	.73	.77	.79	.81
Mar. 15	.32	.48	.58	.65	.69	.71	.73	.73	.73	.74	.82	.90
Apr. 17	.38	.75	.99	1.08	1.22	1.33	1.36	1.37	1.38	1.38	1.41	1.42
Apr. 29	.62	1.16	1.58	1.82	2.15	2.25	2.28	2.30	2.34	3.64	3.87	3.94
Apr. 30	.27	.50	.66	.73	.87	1.26	1.38	1.40	1.40	1.59	1.68	1.69
May 13	.43	.85	1.17	1.23	1.25	1.25	1.26	1.27	1.27	1.27	1.27	1.27
May 14	.21	.34	.42	.48	.65	.74	.80	.84	.88	.93	.94	.96
May 30	.63	.81	.81	.81	.81	.81	.81	.81	.81	.81	.84	.93
June 2	.51	.87	1.14	1.36	1.85	2.13	2.47	2.52	2.80	2.95	3.03	3.10
June 20	.35	.63	.75	.88	1.18	1.45	1.72	2.34	2.88	3.01	3.28	3.68
July 4	.31	.44	.52	.56	.57	.58	.69	.73	.74	.74	.74	.74
July 11	.17	.27	.35	.42	.49	.56	.61	.65	.67	.68	.69	.70
July 28	.18	.29	.39	.40	.44	.58	.59	.60	.60	.60	.60	.60
Aug. 28	.18	.30	.34	.34	.35	.36	.37	.37	.37	.37	.37	.37
Nov. 9	.19	.38	.42	.50	.57	.60	.63	.67	.72	.76	.79	.82
Nov. 16	.33	.60	.79	1.03	1.40	1.51	1.63	1.67	1.68	1.73	1.78	1.79
San Antonio AP												
Apr. 17	.21	.31	.41	.43	.44	.45	.46	.46	.46	.46	.46	.46
Apr. 23	.47	.58	.61	.63	.65	.66	.66	.66	.66	.66	.66	1.14
Aug. 8	.18	.32	.47	.59	.82	1.13	1.52	1.90	2.30	2.65	3.11	3.69
Sept. 16	.32	.58	.83	1.08	1.38	1.65	1.83	1.86	1.89	1.89	1.89	1.89
UTAH												
Milford						None						
Salt Lake City AP						None						

‡ Estimated, tipping bucket not working properly.

EXCESSIVE SHORT DURATION RAINFALL

Table 8—Continued

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
VIRGINIA												
Cape Henry												
May 2	0.16	0.30	0.37	0.41	0.48	0.51	0.53	0.57	0.58	0.58	0.59	0.59
July 6	.26	.31	.32	.33	.34	.34	.34	.34	.34	.35	.37	.42
July 6	.28	.37	.40	.43	.44	.46	.47	.49	.49	.51	.58	.70
July 9	.23	.37	.46	.62	.83	1.07	1.17	1.28	1.33	1.42	1.63	1.71
July 15	.54	.96	1.18	1.35	1.38	1.77	1.99	2.23	2.27	2.33	2.36	2.37
July 26	.48	.73	.82	.90	.94	.94	.96	.98	1.00	1.03	1.06	1.08
Aug. 3	.20	.31	.36	.44	.47	.48	.48	.48	.48	.48	.48	.48
Aug. 11	.27	.43	.48	.50	.56	.57	.57	.57	.57	.57	.57	.57
Aug. 16	.13	.24	.36	.46	.64	.84	.86	.88	.89	.89	.90	.90
Sept. 12	.32	.54	.71	.87	1.10	1.23	1.25	1.26	1.27	1.29	1.38	1.39
Sept. 19	.49	.76	1.01	1.09	1.11	1.13	1.15	1.18	1.23	1.26	1.32	1.33
Lynchburg AP												
June 21	.35	.65	.89	1.01	1.12	1.16	1.16	1.16	1.16	1.17	1.18	1.19
June 22-23	.14	.27	.36	.47	.60	.77	.82	.85	.87	.87	.91	.92
July 4	.24	.28	.42	.48	.51	.52	.53	.56	.56	.56	.77	.80
July 14	.39	.68	.79	.85	.90	.90	.95	.96	.97	.97	.97	.97
July 24	.42	.78	1.05	1.32	1.44	1.44	1.44	1.45	1.45	1.45	1.45	1.45
Aug. 2	.28	.50	.54	.55	.56	.56	.60	.60	.60	.60	.60	.60
Aug. 21	.40	.62	.85	1.08	1.36	1.76	2.42	2.83	3.00	3.06	3.14	3.15
Aug. 23	.15	.25	.37	.47	.53	.57	.64	.67	.69	.70	.71	.71
Aug. 30	.27	.38	.39	.39	.40	.40	.40	.40	.40	.40	.40	.40
Sept. 11	.41	.72	1.02	1.24	1.48	1.64	1.66	1.69	1.71	1.73	1.74	1.74
Sept. 20	.38	.64	.85	1.02	1.17	1.18	1.18	1.21	1.50	1.62	1.63	1.64
Norfolk												
Mar. 28	.17	.28	.35	.41	.42	.42	.43	.43	.43	.43	.43	.43
Apr. 29	.45	.75	.94	1.00	1.19	1.33	1.36	1.37	1.39	1.40	1.40	1.40
June 29	.21	.32	.40	.46	.51	.60	.84	.92	.96	1.02	1.07	1.08
July 5	.28	.45	.50	.51	.51	.73	.74	.74	.97	1.25	1.26	1.27
July 6	.27	.48	.63	.67	.72	.73	.79	.82	.82	.82	.82	1.03
July 9	.13	.25	.36	.48	.62	.75	.89	1.04	1.15	1.23	1.49	1.82
July 15	.35	.53	.57	.67	1.12	1.29	1.40	1.68	1.92	1.95	1.97	1.97
July 16	.34	.47	.47	.47	.47	.48	.48	.49	.49	.49	.49	.49
July 26	.25	.35	.38	.39	.40	.41	.42	.42	.42	.42	.43	.43
Aug. 6	.34	.46	.63	.67	.70	.70	.73	.75	.75	.75	.76	.76
Sept. 12	.23	.32	.36	.38	.40	.41	.44	.49	.49	.49	.49	.49
Sept. 22	.25	.41	.49	.57	.64	.67	.68	.68	.69	.69	.69	.69
Dec. 7	.21	.34	.43	.46	.56	.64	.72	.79	.83	.86	.93	1.01
Richmond AP												
July 5	.26	.33	.33	.33	.33	.33	.34	.34	.37	.42	.42	.43
July 15	.24	.44	.55	.56	.56	.57	.58	.59	.60	.62	.86	.94
Aug. 23	.16	.33	.44	.49	.49	.49	.49	.70	.73	.75	.75	.75
Sept. 14	.33	.65	.68	.69	.69	.74	.95	.96	.96	.96	.96	.96
Sept. 22	.26	.49	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65
Nov. 4	.33	.44	.48	.48	.48	.48	.49	.55	.68	.78	.78	.78
VERMONT												
Burlington	None											
WASHINGTON												
North Head												
Oct. 5	.16	.24	.36	.45	.50	.54	.59	.60	.63	.67	.68	.70
Spokane AP	None											
Tatoosh Island												
Dec. 29	.13	.25	.35	.44	.57	.64	.68	.75	.82	.87	.94	.99
Walla Walla	None											
Yakima AP	None											
WEST VIRGINIA												
Elkins AP												
June 24	.26	.46	.67	.87	1.06	1.10	1.14	1.18	1.24	1.34	1.70	2.10
June 25	.24	.34	.38	.43	.51	.52	.52	.53	.54	.54	.58	.60
July 13	.21	.30	.32	.32	.32	.35	.36	.36	.36	.36	.43	.43
July 15	.21	.35	.50	.54	.57	.60	.62	.66	.66	.66	.66	.66
Parkersburg												
May 24	.31	.44	.47	.48	.48	.48	.48	.48	.48	.48	.49	.50
June 16	.42	.69	.93	1.05	1.25	1.46	1.67	1.80	2.12	2.37	2.43	2.44
Aug. 29	.27	.44	.55	.58	.60	.62	.63	.63	.63	.63	.63	.63
Sept. 21	.29	.57	.65	.67	.79	.89	.97	1.06	1.11	1.13	1.13	1.13
Sept. 22	.36	.58	.62	.62	.65	.84	.86	.93	.99	1.08	1.10	1.10
WISCONSIN												
Green Bay												
June 20	.49	.53	.56	.57	.70	.74	.78	.78	.79	.79	.79	.79
July 12	.29	.49	.51	.54	.59	.63	.64	.65	.71	.75	.80	.95
July 12	.21	.31	.38	.46	.54	.57	.58	.59	.59	.60	.81	1.05
July 25	.26	.33	.36	.37	.44	.54	.54	.55	.55	.55	.55	.55
Aug. 8	.22	.31	.50	.62	.64	.66	.75	.88	.93	.95	.97	.98
Sept. 18	.21	.30	.46	.49	.50	.50	.50	.50	.50	.50	.50	.50
Sept. 18	.22	.44	.64	.76	.80	.80	.81	.81	.81	.82	.83	.83
La Crosse												
May 5	.23	.46	.70	.71	.72	.84	.90	1.08	1.10	1.11	1.13	1.16
May 30	.20	.40	.41	.42	.43	.44	.44	.44	.44	.45	.71	.72
June 7	.18	.36	.39	.42	.40	.47	.62	.64	.72	.73	.79	.79
June 13	.28	.57	.86	1.15	1.45	1.78	1.85	2.02	2.06	2.11	2.17	2.24
June 23	.23	.46	.55	.55	.55	.55	.55	.55	.55	.56	.56	.56
July 23	.13	.26	.39	.51	.61	.62	.62	.62	.62	.62	.62	.62
July 31	.24	.48	.54	.54	.54	.54	.54	.54	.54	.54	.54	.54
La Crosse AP												
June 9	.34	.54	.65	.69	.70	.74	.78	.81	.82	.83	.93	.95
June 12	.37	.69	.83	.95	1.26	1.84	2.12	2.22	2.25	2.27	2.30	2.35
Madison AP												
June 12	.27	.46	.52	.62	.76	1.07	1.13	1.14	1.16	1.19	1.34	1.36
June 13	.18	.31	.45	.63	.72	.80	.84	.89	.93	.99	1.13	1.29
June 23	.29	.47	.55	.57	.80	.86	.88	.89	.89	.89	.89	.90
July 15-16	.35	.61	.86	1.06	1.30	1.74	2.16	2.49	2.54	2.59	2.64	2.72
July 16	.25	.41	.52	.64	.86	1.04	1.21	1.71	1.80	1.89	1.93	1.93
July 19	.23	.32	.46	.51	.72	.79	.88	.98	1.37	1.63	1.79	1.93
July 23	.21	.28	.35	.40	.40	.40	.40	.40	.40	.40	.40	.40
Aug. 10	.26	.43	.50	.53	.57	.64	.68	.70	.70	.70	.70	.70
Sept. 18	.28	.30	.31	.32	.35	.35	.36	.36	.36	.36	.42	.42

Station and date	Maximum precipitation in inches (5 to 180 minutes)											
	5	10	15	20	30	45	60	80	100	120	150	180
WISCONSIN(Cont.)												
Milwaukee AP												
June 13	0.40	0.64	0.90	1.14	1.64	1.95	2.25	2.44	2.53	2.62	2.74	2.83
July 19	.20	.31	.46	.51	.56	.67	.74	.84	.94	1.19	1.34	1.47
Aug. 23	.17	.33	.35	.35	.52	.54	.54	.54	.54	.54	.54	.54
WYOMING												
Cheyenne AP						None						
Lander AP						None						
Sheridan												
June 18	.15	.26	.35	.42	.47	.51	.53	.55	.57	.61	.69	.76
PUERTO RICO												
San Juan AP												
Jan. 31	.25	.28	.29	.29	.29	.29	.29	.29	.29	.29	.29	.51
Feb. 1	.39	.51	.57	.58	.58	.60	.60	.61	.61	.61	.62	.69
Feb. 3	.61	1.02	1.29	1.58	1.68	1.87	1.94	2.14	2.18	2.55	2.72	2.78
Apr. 11	.21	.33	.35	.35	.35	.37	.38	.45	.58	.59	.61	.61
Apr. 30	.26	.37	.52	.61	.72	.73	.77	.80	.85	.85	.85	.86
May 21	.22	.30	.33	.42	.62	.88	.99	1.07	1.19	1.28	1.36	1.42
May 24	.31	.51	.58	.60	.76	1.13	1.21	1.22	1.22	1.22	1.22	1.31
June 13	.23	.37	.58	.67	.81	.82	.84	.98	1.03	1.05	1.11	1.13
July 3	.30	.50	.68	.78	1.04	1.21	1.36	1.52	1.75	1.77	1.85	1.86
July 7	.38	.57	.65	.68	.80	.81	.83	.90	.93	1.00	1.07	1.07
July 18	.34	.46	.67	.79	.81	.82	.82	.93	.99	1.03	1.03	1.14
Aug. 10	.36	.45	.47	.47	.47	.47	.51	.51	.51	.51	.51	.55
Aug. 14	.41	.72	1.02	1.20	1.31	1.38	1.38	1.38	1.38	1.38	1.38	1.38
Aug. 15	.27	.46	.57	.63	.64	.67	.69	.70	.70	.71	.71	.71
Aug. 23	.22	.32	.37	.44	.57	.70	.84	.88	.92	1.07	1.08	1.19
Sept. 4	.16	.31	.41	.49	.56	.56	.56	.57	.60	.60	.64	.80
Sept. 21	.24	.34	.45	.61	.61	.80	.81	.82	.90	.92	.94	.96
Sept. 29	.30	.45	.57	.57	.61	.63	.64	.65	.65	.65	.65	.65
Oct. 7	.20	.31	.35	.35	.43	.45	.55	.65	.72	.73	.73	.73
Oct. 28	.29	.48	.66	.74	.97	1.07	1.09	1.09	1.09	1.09	1.09	1.09
Nov. 15	.28	.45	.70	.90	1.13	1.26	1.40	1.41	1.47	1.49	1.57	1.58
Nov. 17	.30	.40	.49	.60	.75	.94	1.04	1.14	1.20	1.21	1.21	1.21
Nov. 22	.16	.31	.42	.47	.60	.63	.64	.75	.79	.83	.93	.93
Dec. 25	.28	.43	.62	.70	.73	.75	.80	1.09	1.11	1.24	1.62	1.62
Dec. 26	.21	.31	.33	.35	.39	.49	.76	.81	.81	.81	.81	.81
HAWAII												
Honolulu												
Jan. 7	.35	.68	.90	1.02	1.15	1.18	1.31	1.40	1.46	1.51	1.58	1.65
Jan. 22	.27	.45	.63	.81	1.05	1.36	1.65	1.87	2.34	2.47	2.57	2.63
Feb. 6	.25	.31	.33	.34	.34	.38	.38	.38	.38	.38	.38	.38
Nov. 30	.34	.60	.71	.80	.83	.89	.92	.99	1.19	1.25	1.28	1.29
Dec. 3	.37	.53	.63	.76	.89	1.20	1.46	1.64	1.79	1.85	1.86	1.89

Table 9

SUNSHINE, AMOUNT AND PERCENT

YEAR 1950

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
ALABAMA																										
Birmingham	53	17	175	57	213	57	291	74	298	69	302	70	256	58	208	50	180	48	230	65	185	59	97	31	2488	55
Mobile CO	126	39	177	57	208	56	232	60	263	62	250	59	170	39	270	66	209	56	249	70	211	66	112	35	2477	55
Montgomery CO	100	31	215	70	221	59	278	71	307	72	305	71	237	54	325	79	234	68	247	70	241	76	158	51	2868	64
ARIZONA																										
Phoenix CO	232	73	241	78	332	89	367	94	420	98	418	97	341	78	376	91	329	89	328	93	283	90	264	85	3931	89
Prescott	253	80	241	79	301	81	367	94	414	96	410	95	239	54	310	75	307	83	320	91	277	89	233	76	3672	83
Tucson	248	78	254	82	329	88	361	93	401	94	383	90	285	66	378	92	331	89	336	95	303	96	294	94	3903	88
Yuma	282	89	275	89	334	90	368	94	427	99	426	99	373	86	403	97	341	92	338	96	297	94	269	86	4133	93
ARKANSAS																										
Fort Smith	106	34	153	50	214	58	302	77	257	59	343	79	265	60	284	68	178	48	263	75	184	59	187	61	2736	61
Little Rock	60	19	141	46	200	54	244	62	210	49	293	68	218	49	251	60	152	41	239	68	199	64	183	60	2390	53
CALIFORNIA																										
Eureka CO	76	25	146	49	169	46	261	65	290	65	161	36	213	47	168	39	162	43	98	28	81	27	33	11	1858	40
Fresno	195	63	236	78	300	81	369	94	414	95	434	99	431	97	415	99	325	87	302	87	215	70	114	38	3750	82
Los Angeles CO	222	70	202	66	270	73	246	63	241	56	304	71	309	70	351	84	224	60	278	79	229	73	231	75	3107	70
Red Bluff	122	40	204	68	219	59	324	82	405	91	386	86	453	99	418	98	317	85	207	60	180	60	88	30	3323	72
Sacramento	141	46	225	75	245	66	339	85	403	91	410	92	445	99	410	97	320	86	239	69	165	54	58	20	3400	73
San Diego	228	71	192	62	268	72	232	59	220	51	221	52	233	54	281	68	217	58	279	79	230	73	238	76	2839	65
San Francisco	159	52	204	68	264	71	353	89	334	76	330	75	307	68	295	70	264	71	222	64	167	55	95	32	2994	66
COLORADO																										
Denver	194	64	235	78	266	72	242	61	263	59	345	77	298	65	298	70	223	60	291	84	197	66	191	65	3043	68
Grand Junction	172	57	207	69	253	68	318	80	356	80	418	94	344	76	338	79	245	66	277	80	186	62	177	60	3291	73
Pueblo	237	78	243	80	293	79	274	69	313	71	341	77	273	60	359	85	229	62	288	83	190	63	170	58	3210	72
CONNECTICUT																										
Hartford	103	35	141	47	235	63	207	52	249	55	343	75	323	70	274	64	160	43	183	53	130	44	137	48	2485	54
New Haven	96	32	122	41	210	56	178	45	213	47	310	68	318	69	265	62	189	51	230	67	164	55	152	53	2447	55
FLORIDA																										
Apalachicola	238	73	195	62	207	56	249	64	291	69	270	64	188	44	291	71	202	55	244	69	286	89	213	67	2874	67
Jacksonville	223	69	184	59	210	56	283	73	273	64	296	70	233	56	279	68	207	56	174	49	225	71	223	70	2810	62
Key West CO	221	66	229	72	286	77	326	85	322	78	304	74	246	59	250	62	264	72	238	66	238	72	238	72	3162	71
Miami CO	264	79	263	83	283	76	324	84	278	67	322	78	324	77	268	66	264	72	194	54	214	66	244	75	3242	73
Pensacola	200	62	230	74	249	67	297	77	337	79	339	80	276	64	314	77	271	73	297	84	258	81	172	54	3240	73
Tampa	298	91	239	76	234	63	299	78	290	70	257	62	226	54	225	56	273	74	255	71	221	69	250	77	3067	70
GEORGIA																										
Atlanta	77	24	174	58	191	51	264	68	238	55	383	66	197	45	233	56	204	55	225	64	184	59	184	59	2554	53
Macon	151	47	208	68	226	61	301	77	308	72	339	79	224	51	318	77	226	61	224	64	238	76	163	52	2926	65
Savannah	242	76	251	81	246	66	341	88	346	81	289	68	200	46	313	76	229	62	217	61	233	74	161	51	3068	69
IDAHO																										
Boise	55	19	155	53	166	45	270	67	393	86	346	75	427	92	358	83	265	71	179	52	130	45	72	26	2816	63
Pocatello	72	24	183	62	179	48	263	65	321	71	334	73	387	83	361	84	251	67	217	63	110	38	94	33	2772	59
ILLINOIS																										
Cairo CO	92	30	140	46	218	59	282	71	264	60	358	81	323	72	273	65	178	48	272	78	176	58	150	50	2726	61
Chicago	116	39	131	44	163	44	154	38	333	74	341	75	340	74	310	72	219	58	239	70	115	39	129	45	2590	58
Moline	107	36	139	47	135	37	181	45	274	61	320	70	315	69	246	58	202	54	247	72	126	42	118	41	2410	53
Peoria	112	38	137	46	147	40	201	50	300	67	339	75	332	73	267	63	201	54	235	68	130	44	146	51	2547	56
Springfield	114	38	127	42	154	42	186	47	270	61	302	67	311	68	252	59	207	55	245	71	138	46	157	54	2463	54
INDIANA																										
Evansville	86	28	137	45	213	58	257	65	301	68	348	79	345	77	302	72	238	64	282	81	133	44	136	46	2778	61
Fort Wayne	116	39	122	41	215	58	182	46	299	67	279	62	306	67	304	71	173	46	220	64	105	35	92	32	2413	52
Indianapolis	102	34	125	42	174	47	170	43	270	61	270	60	287	63	268	63	198	53	226	65	101	33	105	36	2296	50
Terre Haute	118	39	129	43	175	47	188	47	290	65	304	68	335	74	318	75	176	47	237	68	110	36	136	47	2516	55
IOWA																										
Burlington	139	46	163	55	158	43	211	53	258	58	314	69	300	65	232	54	209	56	271	79	131	44	135	47	2521	56
Charles City CO	139	48	181	61	144	39	197	49	232	51	318	69	298	64	277	64	224	60	236	69	138	47	118	42	2502	56
Des Moines CO	165	56	160	54	157	42	179	45	219	49	283	62	276	60	241	56	236	63	257	75	152	51	100	35	2425	54
Dubuque CO	149	51	161	54	165	45	205	51	304	67	305	67	329	77	268	62	221	59	232	79	135	46	121	43	2595	58
Sioux City	186	63	221	75	241	65	272	68	306	67	367	80	313	67	288	67	305	81	281	82	183	62	120	43	3083	68
KANSAS																										
Concordia CO	173	57	185	62	215	58	242	61	266	60	310	69	205	45	244	57	229	61	266	77	151	50	208	71	2694	61
Dodge City	253	83	223	74	273	74	280	71	316	72	330	75	289	64	320	76	265	71	294	85	215	71	224	75	3282	74
Topeka	183	60	182	61	234	63	221	56	224	51	260	58	149	33	239	57	250	67	274	79	155	51	154	52	2525	57
Wichita	182	59	194	64	240	65	248	63	249	57	350	79	229	51	274	65	259	70	305	88	230	76	247	83	3007	69
KENTUCKY																										
Louisville	100	33	128	41	216	58	236	60	253	57	310	70	288	64	291	69	200	54	264	76	121	40	115	39	2522	58
LOUISIANA																										
New Orleans CO	123	38	169	54	206	56	222	57	223	53	217	50	165	38	237	58	217	59	282	80	223	70	152	48	2436	55
Shreveport	53	17	146	47	226	61	227	58	327	76	341	80	323	74	327	79	243	69	279	79	203	64	153	49	2848	64
MAINE																										
Eastport CO	90	31	161	55	224	61	193	48	311	67	262	56	276	58	258	59	208	55	175	52	86	30	94	34	2338	51
Portland	112	39	175	60	219	59	209	52	296	65	346	75	332	71	263	61	212	56	216	63	123	42	128	46	2631	59
MARYLAND																										
Baltimore CO	93	31	120	40	208	56	220	55	211	47	349	78	226	50	232	55	91	24	173	50	176	58	130	44	2229	49
MASSACHUSETTS																										
Blue Hill Obs.	87	30	106	37	191	53	169	44	214	49	281	64	245	55	221	53	163	45	209	63	120	42	114	42	2120	51
Boston	116	40	147	50	240	65	216	54	272	60	341	75	322	70	275	64	202	54	233	68	140	47	141	50	2645	58
Nantucket	67	23	102	34	203	55	177	44	222	49	318	70	273	59	267	62	178	48	203	59	112	38	85	30	2207	46
MICHIGAN																										
Alpena CO	66	23	94	32	196	53	164	41	270	59	316	68	283	60	227	52	137	36	139	41	74	26	72	26	2038	43
Detroit	64	22	121	41	188	51	170	42	295	65	292	64	347	75	288	67	193	52	204	59	105	36	83	29	2350	50
Escanaba CO	151	53	202	69	282	76	235	58	341	74	303	64	270	57	268	62	196	52	161	48	75	26	109	40	2593	57
Grand Rapids CO	71	24	102	34	170	46	132	33	340	74	332	72	346	74	281	65	183	49	178	52	69	23	40	14	2244	47
Lansing	69	24	113	38	166	45	138	34	325	72	322	70	353	76	297	69	200	53	195	57	63	21	55	20	2296	48
Marquette CO	123	44	155	52	210	57	164	40	314	68	355	75	288	60	344	78	218	58	150	44	101	36	52	20	2474	53
Sault Ste. Marie	94	34	130	45	185	50	183	45	278	60	311	66	279	59	253	58	166	44	144	42	87	31	76	28	2186	49
MINNESOTA																										
Duluth	128	46	200	69	234	63	159	39	246	53	298	63	270	56	308	70	207	55	176	52	117	41	77	29	2420	53
Minneapolis	116	41	162	55	144	39	155	38	198	43	294	63	307	65	269	62	226	60	213	63	135	47	117	43	2336	52
MISSISSIPPI																										
Jackson	96	30	170	55	205	55	256	66	281	66	293	69	247	57	288	70	182	49	246	70	207	66	127	41	2598	58
Vicksburg	65	20	166	53	194	52	240	62	257	60	248	58	255	59	257	62	215	58	266	72	200	63	119	37	2482	55

SUNSHINE, AMOUNT AND PERCENT

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
MISSOURI																										
Columbia CO	125	41	159	53	188	51	234	59	258	58	333	75	276	61	238	56	228	61	253	73	122	40	184	63	2598	58
Kansas City	131	43	157	52	172	46	245	62	270	61	342	77	235	52	222	52	217	58	274	79	137	45	187	64	2589	58
St. Joseph	126	42	157	50	188	51	249	63	249	56	312	70	235	52	227	53	226	61	275	79	167	56	155	53	2566	57
St. Louis CO	151	51	158	52	246	66	237	60	260	59	316	71	340	75	236	56	195	52	263	76	134	44	151	51	2690	60
Springfield	114	37	150	49	194	52	228	58	198	45	344	78	271	60	276	66	235	63	274	79	179	59	176	59	2639	59
MONTANA																										
Billings	121	43	178	61	221	60	244	60	306	66	291	62	352	74	336	77	216	57	178	52	136	48	106	39	2685	58
Great Falls	150	54	205	71	260	70	246	60	328	70	317	66	365	76	342	78	257	68	193	57	131	47	84	32	2878	62
Havre CO	92	33	140	49	195	53	232	57	285	60	291	60	366	75	319	72	242	64	157	47	106	38	97	37	2522	54
Helena	135	48	180	62	174	47	204	50	306	66	273	58	369	77	335	76	229	61	191	57	125	44	97	36	2618	57
Missoula	60	22	95	33	125	34	195	48	215	46	227	48	355	74	314	72	245	65	110	33	62	22	39	15	2042	43
NEBRASKA																										
Lincoln CO	161	54	188	63	203	55	220	55	273	61	374	83	225	49	263	62	241	65	284	82	157	53	193	67	2782	62
North Platte	146	49	185	62	205	55	203	51	221	49	364	80	251	55	268	78	217	58	263	76	132	45	148	51	2603	59
Omaha	151	51	169	57	215	58	233	58	224	50	326	72	267	71	265	62	220	59	262	76	118	40	100	35	2550	57
Valentine CO	210	72	225	76	247	67	228	57	282	62	365	80	329	71	336	78	230	61	252	74	187	64	167	59	3058	68
NEVADA																										
Ely	157	52	221	73	240	65	306	77	322	75	380	85	327	71	332	78	219	59	276	80	195	65	164	56	3139	69
Reno	158	52	233	78	207	56	323	81	344	77	369	82	425	94	379	89	254	68	238	69	190	63	110	37	3230	71
Winnemucca	125	42	215	72	205	55	322	81	374	83	374	83	419	91	391	92	274	73	247	71	164	55	102	35	3212	70
NEW HAMPSHIRE																										
Concord	88	30	132	45	212	57	200	50	244	54	308	67	323	69	246	57	175	47	185	54	107	37	129	46	2349	51
Mt. Washington	55	19	85	28	107	28	106	26	180	39	120	26	118	25	144	33	133	35	162	47	55	19	83	29	1348	30
NEW JERSEY																										
Atlantic City CO	158	52	159	53	257	69	247	62	240	54	334	75	310	68	312	73	182	49	189	55	197	66	161	55	2746	61
Trenton CO	50	17	110	37	198	52	172	43	179	40	305	68	296	65	276	65	165	44	201	58	162	54	140	48	2249	50
NEW MEXICO																										
Albuquerque	214	68	217	71	273	73	329	84	382	88	377	87	297	67	330	79	271	73	327	93	283	91	273	89	3573	80
Roswell	266	84	272	88	337	91	339	87	361	84	365	85	299	68	306	74	229	62	290	83	297	95	240	77	3601	82
NEW YORK																										
Albany	94	32	143	48	233	63	214	53	249	55	324	71	336	72	256	59	159	43	183	54	79	27	80	29	2350	51
Binghamton CO	107	36	119	40	190	51	182	45	222	49	269	59	242	53	240	56	118	32	173	50	93	32	97	34	2052	45
Buffalo	52	18	111	38	198	53	189	47	295	65	349	76	338	73	314	73	206	55	189	55	63	22	105	37	2409	51
Canton CO	79	28	135	46	234	63	173	43	226	49	226	49	213	45	196	45	118	31	117	34	Closed November 1				1717	--
New York CO	80	27	120	40	203	55	178	45	195	44	314	69	306	67	252	59	162	43	195	57	174	58	151	52	2330	52
Oswego CO	44	15	66	23	160	43	206	51	284	62	325	70	349	75	274	64	181	48	175	51	45	15	67	24	2176	45
Rochester	100	34	159	54	250	67	246	61	337	74	347	76	347	74	298	69	179	48	180	53	68	23	96	35	2607	56
Syracuse	57	20	97	33	187	50	194	48	259	57	294	64	332	71	331	77	164	44	159	47	46	16	93	33	2213	47
NORTH CAROLINA																										
Asheville CO	134	43	172	56	213	57	273	69	303	70	345	79	307	69	290	69	210	56	253	72	161	52	139	46	2800	62
Charlotte CO	124	40	189	62	214	58	306	78	268	62	322	74	288	65	316	76	274	74	252	72	226	73	152	50	2931	65
Greensboro	101	32	153	51	203	55	272	69	254	58	313	72	252	57	272	65	207	56	215	61	174	56	128	42	2544	56
Hatteras CO	153	49	200	65	207	56	271	69	274	63	310	71	316	71	315	76	207	56	238	68	217	70	152	50	2860	64
Raleigh	129	41	166	52	200	54	276	70	271	62	266	61	217	49	238	57	154	41	168	48	220	71	143	47	2448	54
Wilmington CO	193	61	227	74	216	58	314	80	309	72	327	76	257	58	326	79	197	53	200	57	222	71	119	39	2907	66
NORTH DAKOTA																										
Bismarck	154	55	170	59	206	56	160	39	196	42	301	64	332	69	312	71	200	53	189	56	174	62	122	46	2516	56
Devils Lake CO	173	63	205	71	212	57	205	50	239	51	285	59	286	59	341	77	249	66	193	57	121	43	104	40	2613	58
Fargo	115	41	214	74	204	55	201	49	227	49	298	63	313	65	283	64	290	77	170	50	112	40	112	42	2539	56
Williston	143	52	199	67	254	69	275	67	321	68	372	77	396	82	337	76	246	65	183	54	139	50	97	37	2962	64
OHIO																										
Cincinnati CO	77	25	95	31	175	47	135	39	207	47	267	60	242	53	254	60	142	38	178	51	58	19	122	41	1952	43
Cleveland	68	23	71	23	141	38	142	35	304	68	294	65	292	64	307	72	206	55	206	60	81	27	81	28	2193	47
Columbus CO	102	34	93	44	189	51	163	41	271	61	290	64	296	65	281	66	153	41	239	59	93	31	105	36	2086	49
Dayton	106	35	100	33	187	50	171	43	245	55	266	59	314	69	302	71	195	52	239	69	114	38	116	40	2355	51
Sandusky	96	32	100	34	182	49	132	33	286	64	291	65	353	77	317	74	206	60	216	63	88	30	77	27	2344	50
Toledo	81	27	99	33	169	46	137	34	293	65	289	64	323	70	292	68	170	45	187	55	92	31	83	29	2215	47
OKLAHOMA																										
Oklahoma City CO	154	49	211	69	255	69	277	71	257	59	311	71	255	57	314	75	235	63	292	83	234	76	203	67	2998	67
Tulsa	112	36	176	58	226	61	228	58	209	48	290	66	180	40	256	61	198	53	274	78	218	71	224	74	2591	59
OREGON																										
Baker CO	81	28	121	42	157	42	254	63	353	77	274	59	426	91	359	83	293	78	175	52	110	38	58	21	2661	56
Portland	30	11	78	26	82	22	216	53	269	58	178	38	336	71	302	69	248	66	55	16	73	26	36	13	1903	39
Roseburg	33	11	124	42	158	43	250	62	359	79	253	55	419	90	358	83	254	68	81	24	57	19	34	12	2380	49
PENNSYLVANIA																										
Erie CO	40	14	41	14	138	37	147	37	219	49	255	56	245	53	211	49	136	36	159	46	46	15	71	25	1708	36
Harrisburg	102	34	136	45	224	61	226	57	193	43	301	67	295	65	288	68	151	40	193	56	129	43	122	42	2360	52
Philadelphia CO	118	39	139	46	202	54	201	51	192	43	298	66	297	65	279	66	156	42	190	55	187	62	145	50	2404	56
Pittsburgh	81	27	98	33	171	46	174	44	201	45	246	55	221	48	227	53	150	40	197	57	92	31	122	42	1980	43
Reading CO	85	28	115	38	197	53	201	47	197	44	330	73	310	68	259	61	117	31	175	51	149	50	122	42	2257	49
Scranton CO	111	37	119	40	186	50	158	39	187	42	283	62	244	53	228	53	107	29	210	61	132	44	119	41	2084	46
RHODE ISLAND																										
Block Island CO	72	24	138	46	227	61	199	50	219	49	290	64	292	64	326	76	---	--	---	--	---	--	---	--	---	--
Providence	93	32	124	42	218	59	182	45	210	46	306	67	266	58	219	51	164	44	228	66	133	45	136	48	2279	50
SOUTH CAROLINA																										
Charleston CO	183	57	216	70	203	55	319	82	305	71	344	80	259	59	311	75	201	54	188	53	222	71	175	56	2926	65
Columbia CO	126	40	197	64	188	51	276	71	304	70	329	76	254	58	270	71	236	63	228	62	218	70	143	46	2769	62
Greenville	314	29	193	62	219	59	305	78	274	63	298	69	261	59	260	63	212	57	240	68	201	65	167	55	2944	61
SOUTH DAKOTA																										
Huron	146	51	186	63	203	55	220	54	283	62	405	87	377	80	344	79	246	66	233	65	143	50	94	34	2880	62
Rapid City	135	47	170	58	269	73	306	76	397	81	334	72	300	64	346	80	232	62	246	72	115	40	173	62	3023	65
TENNESSEE																										
Chattanooga	63	20	140	47	169	46	242	61	174	41	230	52	147	34	267	64	188	51	221	63	134	43	78	26	2063	46
Knoxville	78	25	159	52	207	56	244	62	252	58	274	63	239	54	238	57	171	46	232	66	134	44	83	27	2311	51
Memphis CO	69	22	152	50	201	54	275	70	284	65	368	85	334	76	356	85	213	57	288	82	194	62	145	47	2879	65
Nashville	55	18	123	40	171	46	181	46	127	29	271	62	198	44	240	57	199	53	241	69	134	43	75	25	2015	44
TEXAS																										
Abilene	200	63	231	75	298	80	285	73	281	65	344	80	277	64	302	73	199	54	282	80	275	87	215	69	3187	72
Amarillo	232	74	241	79	316	85	299	76	276	76	333	77	276	62	322	77	200	54	276	79	243	78	222	73	3236	74
Austin	41	13	139	45	225	60	136	35	181	43	265	63	302	70	310	76	190	51	276	78	222	70	205	65	2492	55
Brownsville	153	46	163	52	209	56	138	36	227	55	274	66	323	77	326	81	252	68	276	77	195	60	236	72	2772	62
Corpus Christi	153	47	149	48	193	52	212	55	305	73	316	76	366	86	361	89	274	74	319	90	248	77	243	75	3139	70

Table 9—Continued

SUNSHINE, AMOUNT AND PERCENT

YEAR 1950

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible	Hours	Percent of possible
TEXAS (Cont'd.)																										
Dallas	85	27	175	57	229	62	178	46	181	42	296	69	271	62	304	73	182	49	268	76	247	79	160	52	2576	58
Del Rio	119	37	140	45	253	68	224	58	231	55	262	62	343	80	337	82	240	65	299	84	253	79	259	81	2960	66
El Paso	274	85	249	81	317	85	337	87	337	79	330	77	300	69	371	90	275	74	320	91	303	96	291	93	3704	84
Galveston CO	124	38	167	53	241	65	264	68	259	61	272	65	253	59	318	78	246	66	276	78	206	64	157	49	2783	62
Houston CO	104	32	122	39	224	60	182	47	217	51	237	56	265	62	288	71	190	51	279	78	243	76	189	59	2540	57
Palestine	92	29	154	50	228	61	223	57	303	71	322	75	326	75	317	77	261	70	273	77	221	70	180	57	2900	64
Port Arthur CO	144	44	170	54	208	56	214	55	228	54	291	69	270	63	308	75	243	66	294	83	250	78	189	59	2809	63
San Antonio	66	20	133	43	220	59	148	38	194	46	234	56	302	71	323	79	229	62	274	77	206	64	223	70	2552	57
UTAH																										
Salt Lake City	124	41	191	64	187	50	302	76	331	74	380	84	370	81	385	90	261	70	276	80	124	42	35	12	2966	67
VERMONT																										
Burlington	66	23	103	35	196	53	223	55	298	65	355	76	379	81	312	72	195	52	176	52	56	19	42	15	2401	50
VIRGINIA																										
Cape Henry CO	199	64	177	58	271	73	305	77	286	65	370	84	313	70	328	78	231	62	231	66	212	69	171	57	3094	69
Lynchburg	126	41	140	46	236	63	257	65	222	50	300	68	198	44	245	58	185	49	216	62	181	59	130	43	2436	54
Norfolk CO	142	47	145	48	232	63	262	66	245	56	328	74	260	58	294	70	194	52	195	56	186	60	149	50	2632	58
Richmond	143	46	148	49	234	63	279	71	213	48	305	70	292	65	264	63	110	29	167	48	186	61	172	58	2513	56
Washington Nat'l. Airport	105	35	116	39	207	56	198	50	196	44	308	69	239	53	259	61	132	35	182	52	186	62	136	46	2264	50
WASHINGTON																										
North Head CO	62	22	50	17	56	15	133	33	178	38	137	29	161	34	174	40	163	43	48	14	49	17	24	9	1235	26
Seattle	70	25	63	22	76	20	177	43	228	49	205	43	309	64	307	70	239	63	66	19	52	19	44	17	1836	38
Spokane	109	39	137	48	152	41	245	60	341	73	293	61	379	78	332	75	304	81	104	31	93	33	36	14	2525	56
Tacoma CO	59	21	75	26	89	24	180	44	274	59	223	47	337	70	318	72	242	64	75	22	69	25	43	16	1984	41
Tatoosh CO	76	28	52	18	66	18	157	38	221	47	222	46	234	48	225	51	179	47	68	20	48	17	18	7	1566	32
Walla Walla CO	50	18	79	27	130	35	246	61	360	78	266	56	421	88	382	87	306	81	112	33	54	19	18	7	2424	49
WEST VIRGINIA																										
Elkins	91	30	89	30	169	46	184	46	190	43	228	51	189	42	226	53	130	35	176	51	94	31	82	28	1848	41
Parkersburg	76	25	85	28	180	49	166	42	196	44	272	61	265	58	273	64	147	39	169	49	50	17	80	27	1959	42
WISCONSIN																										
Green Bay	140	49	148	51	205	55	165	41	324	71	338	73	300	64	275	63	212	56	200	59	113	39	121	44	2541	55
La Crosse	86	49	189	64	178	48	195	48	161	59	350	76	342	73	303	70	237	63	212	62	114	39	---	--	2367	--
Madison	139	48	164	56	204	55	192	48	340	75	344	75	356	76	281	65	228	61	222	65	120	41	121	43	2711	61
Milwaukee	86	30	101	34	111	30	95	24	266	59	320	70	279	60	226	52	158	42	187	55	126	43	117	41	2072	45
WYOMING																										
Cheyenne	200	67	214	72	277	75	279	70	314	70	352	78	330	72	317	74	234	63	282	82	167	56	170	59	3136	70
Lander	165	56	221	72	241	65	276	69	294	65	342	75	327	71	319	74	223	59	220	64	163	56	149	53	2940	65
Sheridan	160	56	180	62	218	59	257	63	301	65	341	73	357	76	359	83	245	65	233	69	154	54	140	51	2945	65
PACIFIC AREA																										
Honolulu CO	172	50	168	52	264	71	207	55	289	71	264	65	299	72	289	73	304	88	285	79	184	55	204	61	2929	67
PUERTO RICO																										
San Juan	153	44	164	51	241	64	175	46	174	43	136	34	185	46	179	45	165	45	166	46	105	31	129	39	1972	45
ALASKA																										
Anchorage	119	59	213	84	182	50	229	52	194	36	212	37	188	33	247	51	89	23	73	23	167	77	25	13	1936	45
Fairbanks	27	17	145	61	259	71	327	71	243	42	281	44	268	43	266	52	89	23	109	36	96	51	53	43	2163	46
Juneau	167	74	52	23	167	45	118	27	118	23	51	51	102	19	209	44	88	23	121	38	96	41	20	10	1309	35
Nome	---	--	---	--	---	--	---	--	---	--	121	19	188	31	81	16	77	20	58	19	---	--	---	--	----	--

ANNUAL CLIMATOLOGICAL DATA

Table 10 — YEAR 1950

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Sleet, Hail: Total	Greatest in 24 hrs.	Date	Relative humidity: 1:30a. e.s.t.	7:30a. e.s.t.	1:30p. e.s.t.	7:30p. e.s.t.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	Max temp.: 90° and above	32° and below	Min. temp.: 32° and below	Zero and below
ALABAMA																																			
Birmingham CO	73.4	51.8	62.6	96	June 18	5	Nov. 25	2549	55.46	3.15	July 12-13	1.4	1.4	Nov. 24-25	83	86	56	65	7.4	S	47	W	May 2	55	5.3	95	99	171	132	1	53	12	41	1	56	0
Mobile CO	76.9	59.6	68.3	100	June 27	22	Nov. 25	1398	61.96	6.10	Sept. 2	T	T	Mar. †15	87	88	58	76	----	---	--	---	----	55	5.2	127	116	122	119	0	58	17	65	0	8	0
Montgomery CO	76.1	55.4	65.8	97	June 17	13	Nov. 25	1959	45.07	4.87	Sept. 29	T	T	Feb. †9	AP 84	AP 87	AP 54	AP 66	AP 6.6	AP NW	AP 43	AP E	AP Dec. 6	64	5.5	AP 116	AP 110	AP 139	AP 109	0	50	AP 24	63	1	31	0
ARIZONA																																			
Flagstaff	63.3	30.3	46.7	92	June 29	-6	Jan. 4	6568	10.76	1.38	July 16-17	42.4	8.6	Mar. 25	61	70	35	35	7.2	SSW	‡30	†† NNE	Feb. †13	--	4.5	166	91	108	61	10	47	4	3	10	219	6
Payson CO	74.8	42.5	58.7	104	June 29	8	Jan. 5	3142	12.32	2.64	July 6-7	17.5	9.0	Jan. 29	47	53	31	31	4.6	NE	‡32	†† SSW	Jan. 2	--	3.9	193	81	91	43	5	47	3	54	0	73	0
Phoenix CO	87.3	58.0	72.7	116	Sept. 1	23	Jan. 4	899	3.96	.75	July 7	.3	.3	Sept. 18	AP 45	AP 52	AP 28	AP 22	AP 4.3	AP E	AP 50	AP SW	Aug. 4	AP 89	AP 3.2	AP 225	AP 69	AP 71	AP 23	0	13	0	178	0	6	0
Prescott	73.1	40.9	57.0	102	June 30	4	Jan. 4	3603	13.42	3.08	July 17	1.8	1.1	Jan. 12	45	55	29	27	8.8	SW	45	W	May 25	83	3.7	202	82	81	42	1	46	1	40	0	112	0
Tucson	84.4	54.5	69.4	108	Aug. 31	17	Jan. 6	1172	9.29	1.51	July 21-22	T	T	Sept. †7	37	45	25	22	6.4	SSE	51	NE	July 1	88	3.7	194	87	84	36	0	30	0	152	0	11	0
Winslow	73.4	40.3	56.9	100	June 30	3	Jan. †4	3882	4.91	1.47	July 7-8	1.9	1.0	Feb. 11	41	51	27	22	9.1	SW	56	SW	Mar. 11	--	3.8	190	94	81	34	1	34	0	62	1	122	0
Yuma	91.0	60.4	75.7	123	Sept. 1	30	Jan. 6	603	1.42	.45	Sept. 5-6	.0	.0	----	36	46	25	18	7.2	NNE	43	NW	Mar. 25	93	2.3	261	65	39	11	0	14	0	209	0	6	0
ARKANSAS																																			
Fort Smith	71.5	49.5	60.5	100	June 26	6	Dec. 7	3289	39.27	4.31	July ‡1-22	1.3	.8	Dec. 5-6	80	84	56	60	7.3	NE	44	NE	Aug. 15	61	6.2	100	86	179	98	0	68	18	40	3	77	0
Little Rock	71.1	51.9	61.5	97	June 26	9	Dec. 7	3001	62.86	5.15	Feb. 11-12	3.6	2.1	Jan. 4	81	86	62	64	7.4	SW	44	S	Jan. †4	53	6.3	92	97	176	108	6	68	19	38	3	63	0
Texarkana	73.5	54.1	63.8	95	July 26	13	Dec. 7	2383	60.75	3.85	Feb. 11-12	T	T	Jan. †4	80	86	60	64	9.0	S	‡72	SSW	Feb. 12	--	6.3	97	83	185	108	0	69	25	39	3	39	0
CALIFORNIA																																			
Bakersfield	79.2	53.1	66.2	115	July 1	23	Jan. 5	1831	5.55	.61	Jan. 28-29	T	T	Jan. †2	56	67	49	37	5.5	WNW	‡35	‡ NNW	Mar. 5	--	3.5	209	77	79	42	0	3	31	107	0	15	0
Beaumont	76.5	45.9	61.2	109	Sept. 2	22	Jan. 4	2424	11.35	1.85	Feb. 6-7	.2	.2	Jan. 12	67	67	36	35	6.9	WNW	‡42	‡E	Nov. †9	--	3.1	233	67	65	36	0	13	63	86	0	29	0
Bishop	76.9	38.8	57.9	106	Aug. 19	4	Jan. 7	3644	5.25	1.79	Nov. 18-19	1.7	1.7	Jan. 28	--	--	26	21	----	---	--	---	----	--	4.0	184	105	76	26	1	15	1	99	0	130	0
Blue Canyon	59.9	42.5	51.2	93	Sept. 1	5	Jan. 3	5445	109.35	8.66	Nov. 20-21	312.6	29.6	Mar. 23-24	59	56	48	53	9.5	SSW	‡55	‡ SSW	Oct. 26	--	4.9	166	61	138	95	42	17	86	9	20	86	0
Burbank	75.1	51.2	63.1	103	Oct. 12	28	Jan. 4	1545	7.70	1.00	Mar. 24-25	.5	.5	Mar. 25	75	80	54	50	5.2	S	‡30	‡NW	Apr. 2	--	4.5	160	114	91	33	0	3	47	35	0	9	0
Eureka CO	57.4	46.9	52.2	77	Nov. 9	26	Jan. 3	4589	53.30	5.83	Oct. 28-29	2.8	1.5	Jan. 2	--	--	--	--	7.1	N	43	SW	Oct. 26	40	7.3	60	83	222	134	1	2	42	0	0	13	0
Fresno	77.0	49.7	63.4	109	June 30	21	Jan. 5	2285	12.35	1.54	Mar. 24	T	T	Jan. †2	70	83	59	44	6.6	NW	34	S	Apr. †8	82	3.9	199	63	103	54	0	3	40	101	0	25	0
Los Angeles CO	73.1	54.5	63.8	104	Oct. 13	34	Jan. 13	1293	7.38	1.31	Feb. 5-6	.0	.0	----	--	--	52	58	5.7	W	35	N	Dec. 31	70	4.3	162	119	84	26	0	2	38	13	0	0	0
Los Angeles	68.1	53.0	60.5	97	Oct. 13	33	Jan. 13	1862	6.68	1.55	Feb. 5-6	T	T	Apr. 9	83	86	64	71	4.8	WSW	‡46	‡W	Mar. 25	--	5.3	123	117	125	29	0	1	84	5	0	0	0
Mt. Shasta CO	63.1	37.4	50.3	101	Sept. 2	-2	Jan. 15	5736	45.73	4.70	Oct. 28-29	120.9	21.0	Feb. 3-4	69	77	57	51	7.6	NW	‡35	‡ NNW	Dec. 31	--	5.6	133	78	154	102	19	19	10	35	17	135	2
Oakland	66.2	48.4	57.3	97	Sept. 2	27	Jan. 4	2907	26.16	3.01	Jan. 16-17	T	T	Jan. †8	78	84	68	60	6.6	W	‡43	‡ WSW	Oct. 26	--	5.1	134	108	123	74	0	1	28	9	0	13	0
Red Bluff	75.3	51.6	63.5	114	July 2	21	Jan. 6	2730	23.51	2.25	Feb. 3-4	13.6	9.9	Jan. 15-16	57	66	49	39	8.2	NW	59	SE	Jan. 13	72	4.9	159	74	132	86	4	6	22	110	0	30	0
Sacramento CO	73.6	50.4	62.0	109	Sept. 1	24	Jan. 6	2353	24.32	2.15	Nov. 17-18	T	T	Jan. †4	AP 73	AP 83	AP 60	AP 47	AP 6.9	AP ---	AP 34	AP SE	Oct. 26	AP 73	AP 4.0	AP 206	AP 57	AP 102	AP 75	0	AP 6	AP 25	71	0	15	0
Sandberg CO	66.3	47.4	56.9	100	July 1	17	Jan. 3	3840	3.33	.62	Feb. 5-6	10.3	6.3	Jan. 8	49	54	40	41	17.1	NNW	‡79	‡ ENE	Nov. 9	--	3.3	224	63	78	32	2	2	07	24	6	51	0
San Diego	69.5	54.9	62.2	92	Nov. 3	35	Jan. 6	1411	7.67	1.99	Jan. 28-29	T	T	Jan. 12	81	83	65	65	6.2	WNW	28	SW	Jan. 8	65	5.0	135	124	106	35	0	1	55	3	0	0	0
San Francisco CO	62.2	50.3	56.3	90	Sept. 3	35	Jan. 4	3188	26.34	2.42	Jan. 16-17	T	T	Apr. 8	--	87	69	65	8.8	WNW	43	SE	Oct. 26	66	5.1	140	96	129	73	0	0	13	1	0	0	0
San Francisco	65.0	47.9	56.4	93	Sept. 2	28	Jan. 5	3134	21.53	1.51	Feb. 3-4	T	T	Jan. †8	81	87	68	65	12.7	WNW	51	SW	Oct. 26	--	4.9	154	92	119	73	0	0	28	5	0	10	0
Santa Catalina	68.2	53.0	60.6	98	Sept. 4	37	Jan. 13	2260	7.40	1.06	Jan. 28-29	.0	.0	----	--	71	62	61	----	---	--	---	----	--	4.4	176	86	103	42	0	0	127	13	0	0	0
Santa Maria	68.4	46.3	57.4	103	Oct. 13	24	Jan. 4	2789	10.36	1.00	Mar. 24-25	T	T	Jan. 8	86	88	63	65	7.4	W	‡35	‡NE	Nov. 22	--	4.6	160	113	92	53	0	2	112	5	0	16	0
COLORADO																																			
Alamosa	61.8	23.7	42.8	88	June 17	-18	Jan. 6	8037	4.12	.44	July 18	11.9	2.5	Feb. 12	--	76	35	35	----	---	50	WSW	Jan. 9	--	4.5	149	145	71	42	6	48	3	0	14	238	31
Colorado Springs	62.8	35.2	49.1	89	June †17	-11	Jan. 4	5968	12.17	1.06	July †5-6	16.2	4.3	Jan. 24	57	61	36	39	11.6	---	55	WNW	Jan. 17	--	5.2	115	137	113	79	6	64	15	0	17	153	8

See references notes at end of table

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Sleet, Hail: Total	Greatest in 24 hrs.	Date	Relative humidity: 1:30a. e.s.t.	7:30a. e.s.t.	1:30p. e.s.t.	7:30p. e.s.t.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	Max. temp.: 90° and above	32° and below	Min. temp.: 32° and below	Zero and below
COLORADO (Cont'd.)																																			
Denver	64.7	36.4	50.6	93	June 24	-14	Jan. 4	5606	13.93	2.13	Apr. 15-16	57.6	10.7	May 25-26	56	63	35	36	8.5	S	45	W	Mar. †27	68	5.5	104	135	126	69	14	33	9	12	13	144	9
Grand Junction	65.5	40.0	52.8	97	July 1	-2	Jan. 6	5272	6.18	.76	Sept. 19	24.3	6.4	Jan. 29-30	48	55	37	33	9.0	ESE	57	S	June †7	73	5.1	139	109	117	58	8	33	3	48	18	133	4
Pueblo	68.9	36.7	52.8	97	July 1	-14	Jan. 4	5056	8.25	1.02	July 19	9.9	3.0	Feb. 21	54	64	34	33	7.3	W	80	W	Jan. 17	72	5.3	110	138	117	58	4	50	5	37	9	150	8
CONNECTICUT																																			
Bridgeport	58.6	42.6	50.6	89	July 31	1	Feb. 21	5685	41.09	2.74	Aug. 19-20	23.3	9.0	Feb. 13-14	80	78	62	71	9.8	NE	‡62	E	Nov. 25	--	6.6	78	104	283	150	6	22	37	0	18	105	0
Hartford	59.6	39.8	49.8	92	June 8	-3	Dec. 28	5998	40.78	2.71	Aug. 19-20	40.2	10.4	Feb. 13-14	83	81	59	72	7.9	N	70	E	Nov. 25	54	7.1	69	91	205	132	10	22	53	6	25	134	3
New Haven	58.3	41.8	50.1	88	June 26	0	Dec. 28	5808	38.46	3.90	Aug. 19-20	36.9	6.6	Feb. 13-14	--	80	64	74	7.5	---	57	E	Nov. 25	55	6.7	74	109	182	154	9	27	42	0	18	110	1
DELAWARE																																			
Wilmington	63.0	43.1	53.1	95	June 27	6	Dec. 27	5012	40.48	2.76	Nov. 24-25	2.5	.7	Nov. 27-28	81	79	57	71	7.7	NW	‡46	SSE	Nov. 25	--	6.8	73	97	195	142	0	36	53	13	12	114	0
FLORIDA																																			
Apalachicola CO	76.0	62.2	69.1	98	June 26	24	Nov. 25	1080	47.48	5.86	July 7-8	.0	.0	----	83	86	67	76	8.3	---	45	SE	June †28	67	4.5	168	99	98	94	0	61	16	24	0	4	0
Daytona Beach	80.7	59.7	70.2	101	June 26	27	Nov. 26	844	47.22	6.51	Oct. 17-18	T	T	June 27-28	91	90	62	81	9.4	E	53	NE	Oct. 18	--	4.9	142	130	93	106	0	81	29	65	0	6	0
Fort Myers	84.8	62.3	73.6	95	June 2	34	Nov. 26	355	36.19	3.27	Sept. 3-4	T	T	June 2	90	86	53	76	7.8	E	38	WSW	July 9	--	4.3	170	127	68	95	0	84	18	128	0	0	0
Jacksonville CO	79.1	61.7	70.4	102	June 27	23	Nov. 25	1011	59.42	8.97	Sept. 5-6	T	T	Mar. †21	AP 84	AP 84	AP 51	AP 68	AP 7.2	AP SW	--	---	----	--	AP 5.4	AP 113	AP 136	AP 116	AP 110	0	AP 59	AP 34	74	0	4	0
Key West CO	83.9	72.1	78.0	94	July 31	54	Nov. 30	24	36.87	4.26	Sept. 2-3	.0	.0	----	AP 79	AP 79	AP 65	AP 74	AP 8.7	E	45	NW	Mar. 18	71	4.5	133	175	57	112	0	43	0	93	0	0	0
Melbourne	81.1	63.2	72.1	100	June 26	32	Nov. 26	518	40.90	4.68	Oct. 17-18	T	T	Apr. 25	90	88	62	80	9.4	ESE	55	ENE	Oct. 18	--	4.8	130	157	78	102	0	88	14	43	0	1	0
Miami CO	79.6	69.2	74.4	90	July 31	38	Nov. 26	196	46.82	5.22	Aug. 8-9	T	T	Apr. 26	AP 83	AP 83	AP 58	AP 71	AP 13.6	AP ---	122	S	Oct. 18	73	4.6	138	177	50	120	0	68	1	1	0	0	0
Orlando	83.6	61.4	72.5	100	June 26	29	Nov. 26	571	55.95	7.74	Oct. 17-18	T	T	Mar. †21	89	89	52	73	8.8	ESE	48	NE	Oct. 18	--	5.1	117	159	89	104	0	83	43	118	0	2	0
Pensacola CO	76.4	61.1	68.8	100	June 27	22	Nov. 25	1270	48.01	7.37	Aug. 30	.0	.0	----	84	84	58	74	7.6	AP SSE	49	NW	Mar. 8	73	5.5	122	109	134	101	0	65	15	41	0	7	0
Tallahassee	79.0	57.5	68.3	100	June 27	19	Nov. 26	1292	52.00	7.07	Aug. 31	T	T	Apr. 25	87	88	54	71	5.4	NW	--	---	----	--	5.4	114	134	117	111	0	81	57	72	0	15	0
Tampa	82.5	62.9	72.8	98	June 26	31	Nov. 26	516	56.22	4.67	Sept. 4-5	T	T	June 13	86	87	53	72	7.3	N	45	S	Sept. 5	70	4.7	146	143	76	106	0	80	29	103	0	1	0
West Palm Beach	83.9	66.6	75.3	97	June †26	36	Nov. 26	207	51.97	4.18	Oct. 16-17	T	T	Aug. 6	83	83	58	75	8.5	SE	52	SW	July 27	--	5.3	114	155	96	134	0	72	4	91	0	0	0
GEORGIA																																			
Albany	78.7	55.8	67.3	102	June 27	16	Nov. 25	1656	34.35	2.24	Aug.31 Sept.1	T	T	Mar. †3	83	84	50	63	5.3	S	61	S	Mar. 27	--	4.9	145	117	103	106	0	71	30	104	1	22	0
Athens	72.2	50.9	61.6	100	June 26	7	Nov. 25	2857	41.41	3.77	Oct. 19	T	T	May †28	--	--	--	--	----	---	--	---	----	--	5.8	101	119	145	122	0	44	--	34	2	54	0
Atlanta	71.6	52.5	62.1	96	June 27	3	Nov. 25	2693	41.18	2.77	Aug. 25-26	T	T	Mar. †30	80	83	55	66	9.4	NW	49	S	Mar. †27	53	5.9	102	112	151	119	0	43	40	22	1	40	0
Augusta	75.7	53.2	64.5	104	June 27	11	Nov. 25	2265	42.11	3.81	June 6-7	T	T	Nov. †24	80	83	51	66	7.4	SW	80	SW	May 28	--	5.6	111	119	135	112	1	51	44	70	1	39	0
Columbus	75.9	52.4	64.2	101	June 27	10	Nov. 27	2232	44.36	2.64	Aug. 25-26	T	T	Mar. †3	88	67	55	71	6.7	NW	45	S	Mar. 27	--	5.6	118	102	145	107	0	68	27	66	1	51	0
Macon	77.0	54.0	65.5	103	June 27	10	Nov. 25	2054	33.33	1.64	Mar. 4-5	.2	.2	Nov. 24	78	84	51	63	8.3	WNW	56	SW	Mar. 27	65	5.8	107	106	152	116	0	61	33	93	1	36	0
Rome	72.0	48.5	60.3	96	June 18	3	Nov. 25	3102	60.43	4.64	Mar. 12-13	.8	.8	Nov. 24	88	89	58	76	7.5	SW	--	---	----	--	6.5	88	98	179	150	0	73	44	30	1	77	0
Savannah	76.6	56.8	66.7	102	June 24	15	Nov. 25	1685	55.94	10.34	Sept. 4-5	T	T	Apr. †27	81	83	54	72	9.6	S	58	SW	Apr. 27	69	5.6	109	136	120	114	0	61	34	53	1	18	0
Valdosta	79.8	55.7	67.8	101	June 27	19	Nov. 25	1483	33.51	2.04	July 7	T	T	Nov. 22	--	--	--	--	8.6	---	--	---	----	--	5.3	131	113	121	112	0	59	49	100	1	21	0
IDAHO																																			
Boise	62.3	39.4	50.9	103	June 30	-17	Jan. 31	5756	13.99	1.00	May 1	26.2	8.5	Jan. 17-18	62	71	51	46	10.7	SE	56	SE	Oct. †26	63	6.1	100	99	166	107	9	16	23	41	19	122	5
Lewiston	61.3	39.9	50.6	103	Sept. 2	-22	Jan. 31	5846	18.72	1.19	Oct. 28-29	28.2	11.9	Jan. 15-16	--	--	--	--	6.6	E	--	---	----	--	6.9	78	81	206	132	5	20	26	41	25	82	16
Pocatello	59.2	35.0	47.1	96	Sept. 3	-17	Feb. 2	6769	11.65	.95	Jan. 17-18	33.2	10.1	Jan. 17-18	60	71	51	45	9.5	SW	57	SW	Jan. 13	59	6.0	107	92	166	94	9	23	7	27	29	154	6
ILLINOIS																																			
Cairo CO	66.7	50.0	58.4	98	June 18	5	Nov. 25	3878	70.40	4.79	Feb. 12-13	14.3	6.6	Dec. 5-6	--	94	64	--	8.7	---	36	SW	Apr. †10	61	6.7	84	83	198	135	5	57	7	15	11	77	0
Chicago	57.4	39.2	48.3	93	July 12	-10	Dec. 27	6698	39.65	3.52	July 16-17	60.0	8.4	Dec. 25-26	77	79	58	65	10.1	SSW	54	S	May 5	58	6.7	72	106	187	128	21	35	13	13	58	136	12

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs	Date	Snow, Sleet, Hail: Total	Greatest in 24 hrs	Date	Relative humidity: 1:30a. e.s.t.	7:30a. e.s.t.	1:30p. e.s.t.	7:30p. e.s.t.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	32° and below	Min. temp: 32° and below	Zero and below
ILLINOIS (Cont'd.)					May		Dec.				July			Feb.																					
Joliet	57.8	36.3	47.1	93	†24	-19	27	7003	37.97	4.10	16-17	41.8	5.8	23-24	--	--	--	--	10.4	---	--	---	----	--	6.5	80	113	172	123	15	35	25	8	57	149	18
					June		Feb.				Apr.			Feb.									May												
Moline	57.7	38.0	47.9	94	25	-12	†26	6796	32.88	2.76	23-24	11.9	2.9	25	77	80	59	64	9.8	W	65	SW	5	53	6.3	94	91	180	112	8	44	21	5	60	144	12
					June		Feb.				Apr.			Feb.									May												
Peoria	58.9	39.5	49.2	94	25	-10	26	6411	37.30	5.06	24	27.9	3.8	25	78	82	61	66	11.2	S	61	SW	5	56	6.5	85	108	172	107	16	46	21	4	52	136	9
					June		Dec.				July	AP	AP	Dec.	AP	AP	AP	AP	AP	AP	AP	AP	May	AP	AP	AP	AP	AP		AP	AP	AP				
Springfield CO	61.5	43.6	52.6	96	25	-1	18	5542	32.31	2.58	2-3	16.1	4.4	5-6	80	84	61	67	12.0	S	57	SW	5	54	6.6	84	98	183	119	7	49	23	13	43	118	1
INDIANA					June		Nov.				May			Dec.									Nov.												
Evansville	64.8	45.0	54.9	95	26	-3	25	4644	63.13	3.35	9-10	8.2	2.0	11-12	83	85	61	68	8.4	NNW	40	SW	20	61	6.9	70	93	202	134	4	54	15	8	23	108	2
					Aug.		Dec.				Aug.31			Nov.									May												
Fort Wayne	58.4	38.6	48.6	91	17	-8	27	6541	51.78	4.60	Sept.1	50.1	7.0	25-26	83	85	63	70	8.1	SW	43	SW	†9	52	7.3	54	108	203	142	18	46	25	4	58	138	9
					Aug.		Feb.				Jan.			Dec.									Jan.												
Indianapolis	60.7	40.9	50.8	92	16	-4	26	5771	55.25	3.47	3-4	16.4	2.5	6-7	84	86	64	71	10.5	W	90	W	25	50	6.8	64	103	198	147	7	48	21	3	41	125	5
					June		Feb.				June			Dec.									June												
South Bend	57.2	37.7	47.5	91	†23	-7	†25	6823	44.94	2.83	2-3	67.3	6.7	25-26	84	85	64	71	11.2	S	50	W	16	--	7.2	63	83	219	148	25	37	22	4	54	145	9
					Aug.		Feb.				Jan.			Nov.									July												
Terre Haute	61.6	41.2	51.4	92	16	-8	26	5626	48.12	3.93	3-4	17.2	3.4	25-26	83	85	61	70	9.0	SSW	56	SW	17	55	6.8	74	94	197	140	5	59	19	4	36	124	4
IOWA					June		Feb.				Apr.			Feb.									May												
Burlington	58.8	38.1	48.5	93	25	-11	26	6589	33.09	4.36	24	17.2	2.7	23-24	81	85	64	69	11.1	NW	68	SW	5	56	6.4	91	93	181	99	9	46	24	4	50	149	11
					June		Feb.				Apr.			Feb.																					
Davenport CO	57.6	39.9	48.8	92	25	-7	†26	6574	32.85	3.56	23-24	23.1	3.6	23	--	--	--	--	----	---	--	---	----	--	---	---	---	---	104	9	45	21	2	60	135	9
					June		Jan.				May			Feb.	AP	AP	AP	AP		AP			May		AP	AP	AP	AP								
Des Moines CO	58.3	37.5	47.9	94	25	-9	31	6837	21.63	1.83	8-9	40.1	11.5	12-13	77	82	61	63	10.6	NW	71	SW	5	*54	6.2	101	91	173	94	14	40	19	4	64	152	21
					Aug.		Dec.				Sept.			Feb.									July												
Dubuque CO	55.9	37.3	46.6	91	16	-21	27	7179	32.33	2.21	20-21	40.9	8.1	13	76	79	61	66	5.9	---	35	NW	31	58	6.5	92	94	179	102	11	41	17	3	69	149	20
					May		Jan.				Aug.			Jan.									Mar.												
Sioux City	57.0	33.5	45.3	94	†23	-23	26	7642	21.69	1.99	11-12	28.9	5.7	25	78	82	58	61	10.1	NW	61	N	7	68	5.9	115	90	160	96	8	35	13	12	72	167	32
KANSAS					June		Jan.				May			Feb.									Mar.												
Concordia CO	63.2	41.4	52.3	100	13	-7	26	5515	36.65	6.46	7-8	16.9	4.6	12	--	--	--	--	8.0	---	50	NW	7	61	5.0	144	107	114	78	7	55	13	13	32	139	6
					June		Jan.				Aug.			Mar.									Mar.												
Dodge City	66.9	41.0	54.0	101	24	-6	4	4975	14.55	1.87	10-11	1.2	1.0	18	68	75	47	47	13.4	S	73	NW	7	74	5.2	123	126	116	69	1	57	34	24	19	134	5
					June		Dec.				Aug.			May									Mar.												
Goodland	65.8	34.3	50.1	102	12	-14	6	5964	12.58	1.83	9-10	15.4	4.1	4-5	77	44	47	69	12.3	SW	57	NW	7	--	5.4	126	113	126	67	7	65	34	34	19	169	14
					June		Dec.				July	AP	AP	Jan.	AP	AP	AP	AP	AP	AP	AP	AP	Mar.	AP	AP	AP	AP	AP		AP	AP				
Topeka CO	64.6	42.8	53.7	100	25	-4	6	5097	38.31	3.21	9-10	6.8	1.4	25	79	84	57	61	10.0	SSW	66	SW	26	57	6.1	97	105	163	79	1	62	12	27	24	121	3
					June		Dec.				July			Mar.									May												
Wichita	66.1	44.3	55.2	101	25	-1	6	4703	30.87	5.29	30-31	1.8	.8	2-3	72	79	55	54	13.3	S	63	SE	20	68	5.7	122	99	144	87	0	55	22	23	19	113	1
KENTUCKY					June		Nov.				Jan.			Nov.																					
Lexington	64.0	44.1	54.1	93	26	-3	25	4745	58.67	2.44	5-6	16.5	5.2	25-26	82	84	63	72	10.9	SSW	--	---	----	--	6.7	73	106	186	145	5	49	23	4	22	113	1
	AP	AP	AP	AP	AP	AP	AP		AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP	AP
Louisville CO	65.7	45.4	55.6	95	June26	-1	Nov.25	4367	59.39	3.97	May9-10	9.7	3.5	Nov.26	79	83	58	66	8.2	S	54	SW	Mar.28	56	6.7	76	96	193	138	4	48	15	13	18	105	1
LOUISIANA					Aug.		Dec.				June			Feb.																					
Baton Rouge	77.9	58.3	68.1	95	15	20	7	1386	53.34	3.47	6-7	T	T	†9	86	89	59	67	6.7	SE	--	---	----	--	5.7	104	126	135	109	0	78	28	66	0	11	0
					Aug.		Dec.				June																								
Lake Charles	79.2	59.2	69.3	97	18	21	7	1186	59.37	6.18	2-3	.0	.0	----	89	92	60	73	----	---	--	---	----	--	5.8	102	132	131	110	0	77	38	78	0	11	0
					June		Dec.				July			Dec.									Mar.												
Shreveport	76.0	56.0	66.0	97	27	14	7	2006	47.88	3.40	5-6	.2	.2	7	84	89	62	66	9.6	SSE	42	S	26	64	6.0	104	97	164	113	0	65	25	69	1	27	0
MAINE					May		Jan.				Dec.			Feb.									Jan.												
Caribou	48.7	28.7	38.7	88	†26	-21	21	9525	36.82	2.10	11-12	90.7	7.6	15-16	79	77	59	70	13.9	SSW	†76	NW	30	--	7.2	49	110	206	159	31	21	38	0	94	192	44
					June		Feb.				Dec.			Mar.									Mar.												
Eastport CO	50.7	35.4	43.1	87	8	-11	21	7891	49.46	3.15	10-11	89.9	10.7	18	--	80	68	75	10.6	---	56	NE	23	51	6.7	80	100	185	149	25	25	85	0	66	134	14
					July		Mar.				Nov.			Feb.									Nov.												
Portland	55.5	33.8	44.7	92	18	-21	4	7531	35.67	1.81	20-21	72.2	13.0	14-15	84	79	63	76	7.6	SSW	66	E	26	59	6.3	105	79	181	123	19	15	71	6	44	164	14
MARYLAND					July		Dec.				Sept.			Dec.	AP	AP	AP	AP					Mar.												
Baltimore CO	64.4	48.9	56.7	95	31	14	27	4159	43.96	3.87	10-11	4.2	2.9	10	78	78	56	67	9.2	---	55	N	†9	49	6.4	81	113	171	133	1	30	24	14	8	70	0
					Aug.		Dec.				Sept.			Dec.																					
Frederick	64.9	43.6	54.3	79	1	4	28	4745	41.15	2.01	11	3.0	3.0	11	--	--	--	--	----	---	--	---	----	--	---	---	---	---	149	1	16	11	16	14	103	0
MASSACHUSETTS					June		Feb.				Nov.			Feb.									Nov.												
Boston	59.5	43.0	51.3	93	†8	-1	21	5558	32.70	2.59	20-21	30.9	6.1	22-23	71	70	54	64	12.2	SW	80	SE	26	58	6.3	94	100	171	122	16	15	20	8	20	102	2
					July		Dec.				Sept.			Apr.									Sept.												
Nantucket	55.9	42.7	49.3	81	31	3	27	5808	41.12	4.42	11-12	17.8	4.0	8	85	80	71	83	13.2	SW	72	NE	11	46	6.8	70	104	191	133	4	11	181	0	15	88	0
					Jan.		Feb.				Nov.			Feb.																					
Pittsfield	54.3	34.3	44.3	85	†9	-14	21	7624	42.37	3.80	25	76.0	7.4	14	--	--	--	--	----	---	--	---	----	--	7.0	62	107	196	165	26	30	34	0	60	166	14

See reference notes at end of table.

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Sleet, Hail: Total	Greatest in 24 hrs.	Date	Relative humidity: 1:30a. e.s.t.	7:30a. e.s.t.	1:30p. e.s.t.	7:30p. e.s.t.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	Max. temp: 90° and above	32° and below	Min. temp.: 32° and below	Zero and below
MICHIGAN																																			
Alpena CO	50.1	34.7	42.4	89	July 12	-11	Mar. 4	8290	32.14	1.61	Nov. 25-26	83.1	7.7	Feb. 21	79	80	66	73	10.8	---	52	SE	Mar. 17	43	7.1	64	94	207	157	21	27	21	0	88	162	6
Detroit	56.9	39.8	48.4	96	Aug. 17	1	Feb. 25	6572	39.46	2.48	Feb. 13-14	48.3	5.8	Feb. 21-22	78	80	61	67	9.7	NW	52	NW	Jan. 10	50	6.8	75	106	184	132	16	32	9	8	62	135	0
Detroit WR AP	57.4	38.5	48.0	94	Aug. 17	-5	Dec. 28	6700	38.30	1.97	Apr. †3-4	44.4	5.8	Feb. 13	79	81	57	66	10.4	SW	40	W	Jan. †10	--	6.8	76	100	189	126	18	33	29	8	61	143	5
Escanaba CO	47.3	31.7	39.5	86	July 29	-19	Jan. 30	9232	26.86	2.24	Mar. 26-27	72.7	9.0	Jan. 25	81	81	70	74	10.7	S	56	N	Nov. 25	57	6.3	86	110	169	131	49	20	8	0	95	176	24
Grand Rapids CO	55.9	39.7	47.8	90	July 11	-2	Nov. 25	6698	36.52	1.83	June 2-3	85.4	6.0	Feb. 22	AP 83	AP 84	AP 62	AP 69	#11.2	#W	#79	#SW	May 5	#47	#7.1	#72	#78	#215	149	27	41	3	3	60	136	1
Lansing	55.1	36.9	46.0	90	July 12	-4	Feb. 25	7198	36.51	2.49	June 2-3	52.3	6.1	Nov. 25-26	82	83	63	71	14.3	W	52	SW	Jan. †18	48	6.7	81	96	188	150	17	43	19	1	72	150	7
Marquette CO	47.8	32.0	39.9	93	June 23	-14	Jan. 30	9231	33.41	1.42	Aug. 1-2	191.2	10.1	Nov. 26	74	75	65	69	8.5	---	37	NW	Nov. 16	53	7.4	54	87	224	160	52	30	18	2	103	178	15
Muskegon	54.0	36.6	45.3	88	June 8	-14	Nov. 25	7342	34.84	1.86	July 16-17	84.3	9.1	Dec. 7-8	83	83	67	72	9.8	SW	47	SSW	Dec. 8	--	7.1	62	92	211	159	32	40	24	0	65	158	5
Sault Ste. Marie	46.8	28.3	37.6	86	June 8	-20	Feb. 20	9923	29.51	1.37	Jan. 23-24	135.5	7.4	Jan. 25	85	83	67	75	9.0	NW	49	SE	May 5	49	7.3	62	84	219	184	46	20	42	0	105	189	39
MINNESOTA																																			
Duluth CO	44.8	26.8	35.8	89	July 28	-30	Jan. 18	10646	32.14	2.48	May 5	111.6	23.0	Dec. 5-6	AP 81	AP 83	AP 66	AP 69	AP 13.4	---	65	NE	Mar. 27	AP ††53	AP 6.7	AP 80	AP 100	AP 185	138	28	AP 34	AP 44	0	126	190	54
Intern'l. Falls	43.5	21.6	32.5	91	May †23	-40	Jan. 18	11806	32.79	2.49	May 4-5	93.1	13.9	Apr. 25	81	83	63	68	----	W	--	---	----	--	6.7	78	92	195	159	27	39	10	3	132	204	94
Minneapolis	51.4	32.3	41.9	96	Aug. 16	24	Jan. 26	8855	21.61	1.11	Aug. 28	73.0	7.6	Jan. 25-26	74	79	59	62	11.5	NW	52	SW	May 5	52	5.9	117	86	162	125	24	23	15	12	105	167	50
Rochester	52.2	30.4	41.4	92	June 25	-31	Dec. 27	8911	23.23	3.02	July 18-19	64.3	9.7	Feb. 13-14	78	78	59	63	10.5	WNW	--	---	----	--	6.5	92	89	184	105	18	26	18	8	97	170	54
St. Cloud	49.6	26.9	38.3	100	Aug. 16	-32	Jan. 30	9954	26.74	3.24	Oct. 1-2	71.3	6.2	Apr. 25	79	82	62	64	8.8	WNW	43	W	June 25	--	---	91	103	171	123	21	29	16	9	114	186	65
St. Paul	51.6	32.3	42.0	97	Aug. 16	-25	Jan. 27	8820	24.46	1.70	May 5-6	64.1	6.6	Jan. 25	75	78	58	61	11.4	NW	49	SSW	May 5	--	6.1	109	86	170	128	20	25	8	11	102	169	48
MISSISSIPPI																																			
Jackson	76.6	54.7	65.7	99	June 17	18	Nov. †25	2021	54.46	4.35	Jan. 5-6	T	T	Mar. †27	83	88	57	64	7.6	SSE	59	NW	Mar. 27	58	5.8	112	97	156	130	0	71	22	82	0	30	0
Meridian	76.5	53.1	64.9	98	June 13, 16		Nov. 25	2144	52.49	4.19	Jan. 5-6	T	T	Feb. †14	88	90	56	68	6.4	SW	--	---	----	--	5.9	112	87	166	107	0	69	38	76	0	49	0
Vicksburg CO	74.4	56.3	65.4	95	June 17	18	Dec. 7	1991	52.09	3.06	Jan. 4-5	T	T	Feb. †9	--	--	--	--	8.3	---	42	S	July 16	55	6.0	95	112	158	123	0	68	15	43	1	15	0
MISSOURI																																			
Columbia	63.9	43.5	53.7	95	June 25	0	Dec. †6	5051	32.32	3.02	June 2-3	8.6	1.6	Dec. 5	80	86	61	65	7.5	S	40	SW	May 5	58	6.2	87	114	164	97	4	53	20	11	27	120	2
Kansas City	64.2	43.7	54.0	97	June 25	-3	Dec. 6	5068	29.99	3.97	July 18-19	3.3	1.0	Dec. 5	71	78	55	55	9.4	SSW	68	SW	May 5	58	6.0	108	98	159	92	1	43	15	17	24	118	2
St. Joseph	63.2	40.6	51.9	99	June 25	-4	Dec. 6	5653	29.30	2.83	July 12	9.0	1.2	Jan. †25	76	83	57	61	10.6	S	62	SW	May 5	57	5.7	114	101	150	83	3	58	27	18	34	136	6
St. Louis CO	63.7	46.8	55.3	95	June †25	3	Dec. 7	4782	43.21	3.88	Jan. 3-4	9.6	3.0	Dec. 5-6	AP 77	AP 81	AP 58	AP 62	11.4	NW	59	SW	Jan. 24	60	6.3	90	109	166	121	5	49	7	12	24	101	0
Springfield	64.7	43.8	54.3	94	July 25	-4	Dec. 7	4719	37.76	3.91	Jan. 3-4	8.2	3.1	Dec. 5-6	82	85	62	66	11.3	SSE	51	S	Apr. 10	59	6.2	95	94	176	111	5	69	25	11	18	114	2
MONTANA																																			
Billings	55.4	33.0	44.2	100	Sept. 4	-21	Jan. 25	7847	13.76	.73	July 29	72.6	6.0	Mar. 17-18	64	72	55	51	11.2	SW	66	W	Apr. 1	58	6.3	79	123	163	104	27	25	19	14	51	165	29
Butte	51.2	23.2	37.2	91	Sept. 3	-34	Jan. 31	10039	12.74	.75	Sept. 8-9	81.2	8.4	May 1-2	71	80	53	51	9.1	S	‡55	‡S	Aug. 4	--	7.1	57	98	210	133	29	43	5	2	55	241	44
Glasgow CO	50.1	25.3	37.7	100	Sept. 4	-50	Jan. 26	10227	19.03	1.70	June 7-8	52.5	3.5	Jan. 23	--	--	--	--	----	---	--	---	----	--	6.8	68	106	191	104	23	17	24	22	101	192	61
Great Falls	52.7	32.3	42.5	94	Sept. 3	-33	Jan. 3	8354	16.55	1.72	Aug. 9	81.6	11.0	June 7-8	62	68	51	48	13.3	SW	67	SW	Nov. 21	62	6.9	73	84	208	98	28	24	14	6	51	164	41
Havre CO	51.4	27.6	39.5	98	July 9	-39	Jan. 25	9486	13.49	1.64	June 7-8	43.6	5.3	Mar. 16-17	--	--	--	--	8.3	---	50	W	Apr. 1	54	6.3	81	125	159	98	17	20	8	10	75	190	48
Helena	53.0	28.7	40.9	96	Sept. 3	-31	Jan. 29	8850	12.40	.89	Aug. 4-5	74.1	5.7	Nov. 7-8	68	77	57	53	6.6	W	59	SE	Jan. 10	57	6.9	66	108	191	112	25	38	10	9	56	185	39
Kalispell	52.1	30.4	41.3	94	Sept. 3	-38	Jan. 31	8666	20.08	1.24	June 24-25	70.9	10.9	Jan. 19	--	--	61	--	8.4	S	‡63	NNE	Jan. 13	--	7.3	64	75	226	147	32	32	44	2	50	176	29
Missoula	53.9	31.1	42.5	98	Sept. 3	-24	Jan. 31	8279	14.18	1.18	Aug. 5-6	58.2	6.9	Apr. 2-3	74	84	62	55	5.4	SE	51	NW	Apr. †23	43	7.4	56	76	233	149	22	26	28	11	48	182	19
NEBRASKA																																			
Lincoln CO	60.6	39.0	49.8	99	June 23	-15	Jan. 26	6302	24.82	2.03	Oct. 1-2	34.1	5.5	Feb. 12	AP 78	AP 82	AP 56	AP 61	9.2	S	63	NW	Mar. 7	AP 62	AP 5.6	AP 118	AP 105	AP 142	89	14	53	3	18	41	145	11
North Platte	61.0	34.0	47.5	98	June 12	-25	Jan. 26	6783	22.80	4.08	Aug. 11-12	36.8	8.0	May †5	77	82	54	54	10.5	SE	72	N	Mar. 7	59	5.6	113	116	136	88	13	62	16	16	38	170	23

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

Table 10—Continued

YEAR 1950

State and Station	Temperature: Averages: Daily maximum	Temperature: Averages: Daily minimum	Temperature: Averages: Monthly	Temperature: Extremes: Highest	Temperature: Extremes: Date	Temperature: Extremes: Lowest	Temperature: Extremes: Date	Degree days	Precipitation: Total	Precipitation: Greatest in 24 hrs	Precipitation: Date	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Greatest in 24 hrs	Precipitation: Snow, Sleet, Hail: Date	Relative humidity: 1:30a. e.s.t.	Relative humidity: 7:30a. e.s.t.	Relative humidity: 1:30p. e.s.t.	Relative humidity: 7:30p. e.s.t.	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	Max temp: 32° and below	Min temp: 32° and below	Min temp: Zero and below
NEBRASKA (Cont'd.)																																			
Norfolk	56.6	34.1	45.4	96	June 13	-24	Jan. 26	7566	28.94	2.71	July 8-9	32.9	6.0	Feb. 12	77	84	56	60	----	---	65	NW	Mar. 7	--	5.5	134	90	141	89	12	47	15	14	66	166	32
Omaha	59.3	37.9	48.6	98	June 25	-18	Jan. 31	6642	28.03	2.82	July 12	28.9	7.4	Feb. 12-13	76	80	57	59	11.3	SSE	73	NW	Mar. 7	57	5.3	123	101	141	91	9	47	10	14	52	148	15
Valentine CO	57.2	30.1	44.7	98	June 22	-29	Jan. 26	7791	17.65	1.56	June 13-14	43.0	6.0	May 5	81	54	54	--	8.8	---	54	W	July †8	68	5.9	102	116	147	85	16	50	--	14	54	178	30
NEVADA																																			
Elko	62.6	29.8	46.2	100	July 1	-28	Feb. 2	7032	14.60	1.82	Dec. 2-3	47.4	7.0	Jan. †16	67	78	49	45	6.1	SW	--	---	----	--	5.2	133	99	133	83	14	25	5	39	22	217	16
Ely	62.0	28.5	45.3	95	July 1	-15	Jan. 15	7234	6.03	.62	Mar. 24-25	28.6	5.4	Mar. 24-25	--	--	--	--	11.0	---	65	S	Oct. 27	69	5.3	109	136	120	58	8	39	0	14	24	221	18
Las Vegas	81.9	52.1	67.1	115	July 2	12	Jan. 5	2111	2.34	.65	July 5-6	.0	.0	----	27	35	19	14	7.5	---	--	---	----	86	3.1	224	78	63	11	0	13	0	143	0	36	0
Reno	67.4	33.4	50.4	101	Sept. 2	-8	Jan. 15	5599	9.61	1.11	Oct. 26-27	16.7	5.7	Jan. 10	59	76	43	34	6.1	W	56	S	Oct. 29	71	4.6	171	87	107	60	8	13	20	50	9	174	5
Winnemucca	65.8	33.6	49.7	104	June 30	-14	Jan. 3	6068	10.61	1.58	Nov. 18-19	29.9	4.6	Jan. 16	54	64	42	35	8.4	---	63	W	Mar. 5	70	5.7	112	109	144	81	11	17	3	52	14	175	7
NEW HAMPSHIRE																																			
Concord	57.6	33.7	45.7	93	June 9	-21	Feb. 8	7264	34.53	2.71	Aug.31 Sept.1	51.2	7.1	Feb. 14-15	81	78	52	67	6.0	NW	72	NE	Nov. 26	51	6.6	78	111	176	112	19	17	70	7	40	163	15
Mt. Washington CO	33.7	20.1	26.9	65	July 17	-38	Mar. 3	13778	60.87	3.44	Nov. 25-26	153.7	9.4	Feb. 14-15	--	--	--	--	33.2	---	--	---	----	30	7.6	54	72	239	202	53	15	320	0	160	241	62
NEW JERSEY																																			
Atlantic City CO	60.1	47.8	54.0	91	July 20	9	Feb. 21	4625	38.46	2.61	Nov. 25	.7	.4	Jan. 19	--	79	69	75	15.6	---	72	E	Nov. 25	61	6.7	75	102	188	134	0	22	38	2	6	67	0
Newark	61.8	44.3	53.1	98	June †27	5	Dec. 28	5118	41.57	2.74	Nov. 25	12.2	3.3	Feb. 13	74	74	55	65	10.3	SW	‡82	E	Nov. 25	--	6.9	76	99	190	140	3	18	23	18	15	100	0
Trenton CO	61.4	44.9	53.2	93	June 26	7	Feb. 21	5014	41.76	3.73	Aug. 3	5.4	2.4	Feb. 1	--	--	--	--	9.1	---	64	E	Nov. 25	50	6.8	76	99	190	136	2	28	--	9	16	99	0
NEW MEXICO																																			
Albuquerque	73.0	45.0	59.0	98	June 16	7	Jan. 4	3411	4.10	.57	July 20-21	T	T	Jan. †3	38	50	31	25	8.8	S	72	W	May 4	80	4.0	177	118	70	45	0	35	2	58	1	90	0
Clayton	69.5	37.7	53.6	97	June 14	-10	Jan. 4	4657	19.23	2.59	July 20	6.3	2.0	Apr. 13	67	71	41	46	14.7	SSW	‡73	‡SW	Jan. 28	--	4.8	131	137	97	62	3	63	16	22	4	140	3
Raton	67.7	32.4	50.1	93	June 15	-7	Dec. 6	5568	11.80	1.84	July 26	8.1	2.0	Apr. 13	56	66	32	36	9.6	SSW	--	---	----	--	5.1	121	146	98	67	4	81	6	9	4	176	7
Roswell	78.5	44.4	61.5	104	June 26	7	Dec. 6	2854	17.02	2.11	Sept. 3-4	.5	.5	May 12	48	61	31	27	8.3	SSE	59	N	July 15	82	4.1	175	111	79	38	0	63	3	99	0	104	0
NEW YORK																																			
Albany	57.0	36.5	46.8	92	June 26	-20	Mar. 4	6960	38.64	4.08	Aug. 31	73.0	12.2	Feb. 13-14	81	80	59	70	8.9	S	70	E	Nov. 25	51	6.8	63	115	187	150	20	21	34	7	49	148	14
Bear Mountain CO	54.5	39.8	47.2	90	June †8	-5	Feb. †21	6819	47.87	2.21	Nov. 4-5	52.3	10.7	Dec. 16	--	--	--	--	----	---	--	---	----	--	---	---	---	---	159	14	--	--	2	56	133	6
Binghamton CO	57.7	38.0	47.9	91	June 26	-6	Feb. 21	6567	42.64	2.04	Dec. 3-4	88.3	10.2	Feb. 13-14	AP 85	AP 84	AP 60	AP 74	6.0	AP WSW	33	SW	Jan. †14	45	7.7	32	103	230	184	24	31	51	2	42	144	7
Buffalo	56.1	38.7	47.5	91	July 9	-3	Feb. 20	6704	37.38	2.03	Aug.31 Sept.1	88.1	10.5	Dec. 13-14	80	79	62	72	13.5	SW	91	SW	Jan. 14	51	7.2	62	98	205	171	23	26	20	2	50	141	2
New York CO	61.1	46.2	53.7	92	June 25	5	Feb. 21	4878	38.72	2.84	Aug. 19-20	12.1	2.8	Dec. 26	AP 73	AP 74	AP 62	AP 64	13.6	---	70	W	Jan. †14	52	6.7	81	107	177	133	4	20	39	6	13	87	0
Oswego CO	54.1	39.5	46.8	88	June 9	-9	Mar. 4	6867	41.68	2.49	Oct. 8-9	103.8	9.8	Feb. 25-26	--	--	--	--	9.5	---	48	SE	Nov. 25	45	6.9	78	87	200	177	34	20	6	0	50	132	7
Rochester	56.7	37.9	47.3	92	June 9	-4	Mar. 4	6791	40.54	2.86	June 23&24	95.9	11.0	Feb. 13&14	83	82	61	71	10.7	SW	73	W	Jan. 14	56	7.1	55	102	208	167	30	31	11	7	47	146	3
Syracuse	56.7	37.6	47.2	91	June 6	-16	Mar. 4	6839	39.65	2.20	Sept. 10	144.5	8.3	Feb. 22	80	79	60	70	9.8	W	59	E	Nov. 25	47	7.3	53	103	209	181	43	37	14	4	56	145	10
NORTH CAROLINA																																			
Asheville CO	67.1	46.0	56.6	92	June 24	1	Nov. 25	3829	33.96	2.61	Dec. 6-7	3.5	2.5	Nov. 24-25	AP 88	AP 87	AP 56	AP 74	8.1	---	36	SE	Ma 27	62	6.2	78	128	159	135	1	44	57	4	8	94	0
Charlotte CO	71.2	51.9	61.6	98	June 27	14	Nov. 26	2923	33.46	2.24	Oct. 19-20	T	T	Jan. †17	AP 77	AP 81	AP 52	AP 65	7.7	AP SW	35	SW	Mar. 8	65	6.2	87	118	160	119	0	AP 62	AP 26	30	2	49	0
Greensboro	68.8	47.0	57.9	96	June 27	9	Dec. 19	3727	36.75	1.72	May 11-12	2.4	1.1	Nov. †24-25	81	82	53	69	8.6	SW	42	NE	May 25	56	6.1	91	115	159	127	1	61	37	17	4	92	0
Hatteras	69.7	57.7	63.7	92	June 25	26	Nov. 25	2149	46.82	2.79	Oct. 19-20	T	T	Nov. †25	82	81	71	80	12.4	S	45	SW	Mar. †1	64	6.3	91	105	169	130	0	66	8	1	0	13	0
Raleigh CO	71.3	50.9	61.1	97	June 19	14	Nov. 26	3017	39.39	2.62	June 29	.6	.3	Nov. †25	AP 81	AP 82	AP 52	AP 70	AP 6.6	AP SW	32	NW	Apr. 30	54	5.4	110	153	102	110	0	44	36	41	1	52	0
Wilmington CO	72.5	55.7	64.1	97	June 24	16	Nov. 26	2244	56.32	7.10	July 6-7	T	T	Nov. †25	90	87	61	81	8.7	---	49	SW	Mar. 27	66	5.9	103	117	145	114	0	53	14	20	0	20	0
Winston-Salem	68.5	48.2	58.4	97	June 25	10	Nov. 26	3608	36.79	1.53	Mar. 13	2.9	1.8	Nov. 24	75	76	51	63	8.3	SW	‡45	NNW	Dec. †4	--	6.0	95	115	155	121	1	54	37	20	4	76	0

See reference notes at end of table.

State and Station	Temperature: Averages: Daily maximum	Temperature: Averages: Daily minimum	Temperature: Averages: Monthly	Temperature: Extremes: Highest	Temperature: Extremes: Date	Temperature: Extremes: Lowest	Temperature: Extremes: Date	Degree days	Precipitation: Total	Precipitation: Greatest in 24 hrs.	Precipitation: Date	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Greatest in 24 hrs.	Precipitation: Snow, Sleet, Hail: Date	Relative humidity: 1:30a. e.s.t.	Relative humidity: 7:30a. e.s.t.	Relative humidity: 1:30p. e.s.t.	Relative humidity: 7:30p. e.s.t.	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Sunrise to sunset: Partly cloudy	Sunrise to sunset: Cloudy	Precipitation .01 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	Max temp: 32° and below	Min temp: 32° and below	Min temp: Zero and below
NORTH DAKOTA																																			
Bismarck	48.4	25.1	36.8	95	June 21	-44	Jan. 18	10534	15.89	1.30	Mar. 26-27	97.0	13.5	Mar. 26-27	78	81	60	63	10.9	WNW	56	SE	Aug. 5	56	6.4	87	100	178	101	28	26	8	18	118	195	78
Devils Lake CO	43.6	24.3	34.0	92	July 29	-36	Jan. 26	11478	17.85	1.72	Sept. 9-10	85.4	7.4	May 2	--	81	62	65	9.3	---	45	NE	Mar. 26	58	6.1	103	98	164	110	29	20	9	6	138	192	89
Fargo	46.9	26.4	36.7	99	June 6	-32	Jan. 26	10589	17.37	1.17	May 8	54.3	4.4	Jan. 23-24	75	79	61	62	14.0	NNW	66	NW	June 22	56	6.2	84	114	167	118	24	32	10	11	127	181	83
Williston CO	46.9	26.4	36.7	97	July †28	-37	Jan. 26	10530	19.60	1.72	July 29	57.4	7.2	Mar. 26-27	74	79	59	58	7.4	---	45	W	Nov. 5	64	7.1	62	82	221	106	19	22	16	8	113	187	65
OHIO																																			
Akron	57.4	38.2	47.8	92	Aug. 17	-9	Dec. 27	6599	44.78	2.22	June 9-10	46.7	7.4	Nov. 25-26	84	85	64	75	8.9	SW	--	---	----	--	7.0	68	89	208	165	11	38	33	2	56	141	3
Cincinnati CO	64.1	46.2	55.2	96	June 26	5	Nov. 25	4589	57.90	3.05	Sept. 2-3	20.9	6.1	Nov. 25-26	AP 80	AP 83	AP 62	AP 69	AP 9.3	AP SW	AP 60	AP SSW	Feb.AP †14	43	AP 6.9	AP 72	AP 95	AP 198	147	7	48	6	11	19	102	0
Cleveland	59.2	40.2	49.7	93	June †25	-3	Dec. 27	6119	50.38	2.73	July 19-20	64.6	15.0	Nov. 24-25	81	81	62	70	11.3	S	59	SW	Jan. 14	47	6.9	71	96	198	171	45	32	7	7	47	132	2
Columbus CO	61.3	43.6	52.5	94	July †26	-3	Dec. 27	5398	36.62	1.70	Jan. †5-6	24.4	8.2	Nov. 25-26	AP 82	AP 83	AP 61	AP 69	9.5	S	57	SW	Nov. 20	49	6.9	70	97	193	141	10	32	0	9	36	117	2
Dayton	59.5	41.4	50.5	90	June †26	-4	Dec. 27	5858	49.03	2.28	Nov. 19-20	35.3	10.0	Nov. 25-26	82	84	63	70	11.0	WNW	78	NW	June 16	51	7.0	63	107	195	150	9	38	31	2	49	128	4
Sandusky CO	58.5	42.6	50.6	94	Aug. 17	-3	Dec. 27	5903	50.50	4.28	Sept. 31-1	48.6	12.3	Nov. 25	--	--	--	--	8.6	---	43	SW	Apr. 11	50	6.6	82	96	187	144	13	33	10	7	49	127	2
Toledo	57.7	38.8	48.4	94	Aug. 17	-9	Dec. 27	6523	47.84	2.48	Oct. 9-10	45.7	6.4	Jan. 6	83	84	63	72	11.4	SW	56	SW	Jan. 14	47	7.1	65	99	201	141	16	42	19	4	61	139	5
Youngstown	57.6	38.0	47.8	92	Aug. 12	-7	Dec. 28	6602	47.34	1.84	Feb. 13-14	69.8	20.7	Nov. 24-25	84	84	63	73	10.2	SW	50	WSW	Jan. 14	--	6.8	77	86	202	176	14	36	23	3	53	140	2
OKLAHOMA																																			
Oklahoma City CO	70.6	48.9	59.8	97	June 26	4	Dec. 6	3453	33.52	5.53	May 9-10	1.9	1.3	Jan. 3	AP 74	AP 81	AP 56	AP 55	9.3	AP S	34	NW	June †10	67	AP 5.4	AP 127	AP 106	AP 132	82	1	41	AP 22	35	10	72	0
Tulsa	69.8	47.7	58.8	99	June 26	3	Dec. 6	3670	32.65	4.44	May 10-11	4.7	2.1	Jan. 3-4	76	81	56	58	11.4	S	54	SW	Jan. 24	59	6.0	108	101	156	90	3	60	14	26	10	92	0
OREGON																																			
Baker CO	57.5	34.0	45.8	99	Sept. 2	-20	Jan. 31	7160	8.76	.92	June 6-7	45.4	6.7	Jan. 26	--	--	--	--	5.3	---	36	SW	Oct. 27	56	6.4	82	96	187	108	20	17	0	20	28	155	13
Burns CO	59.2	32.9	46.1	100	Sept. 2	-20	Jan. 31	7163	11.54	.89	Jan. 17-18	56.9	10.5	Jan. 17	63	73	53	44	----	---	--	---	----	--	6.5	98	83	184	92	17	12	14	29	27	180	9
Eugene	63.2	41.7	52.5	99	Aug. 19	-3	Jan. †31	4795	54.99	3.65	Nov. 15-16	36.8	7.2	Jan. 27	85	92	72	63	8.2	N	--	---	----	--	7.0	79	62	224	170	13	2	37	23	7	50	4
Meacham	52.3	33.8	43.1	97	Sept. 2	-15	Jan. 30	8292	32.42	1.54	June 7-8	159.7	7.4	Apr. 27-28	74	80	63	62	6.4	ESE	‡38	‡W	Mar. 17	--	7.2	80	51	234	174	49	21	28	4	36	165	18
Medford	66.2	41.6	53.9	102	July †31	1	Jan. 31	4613	28.62	2.92	Oct. 27-28	20.8	5.4	Jan. 16	73	84	66	51	6.4	N	‡50	‡SW	Jan. 13	--	6.6	99	67	199	118	5	9	48	52	5	62	0
Pendleton	60.3	40.5	50.4	101	Sept. 2	-18	Feb. 2	5925	14.71	.83	June 6-7	52.7	13.3	Jan. 3-4	65 AP	72 AP	56 AP	51 AP	7.8 AP	SE AP	-- AP	--- AP	----- AP	--	6.5 AP	97 AP	70 AP	198 AP	123	15	12 AP	51 AP	29	27	90	15
Portland CO	61.0	45.9	53.5	97	Aug. 17	7	Feb. 2	4591	57.38	2.95	Nov. 15	33.4	5.2	Jan. 20	79	87	73	65	7.1	NW	50	SW	Oct.AP 27	39	7.5	60	65	240	181	13	5	36	14	14	27	0
Roseburg CO	65.0	44.7	54.9	101	Aug. 16	16	Jan. 31	4075	46.44	3.94	Oct. 28-29	28.4	6.1	Jan. 29-30	--	--	69	58	4.4	---	35	W	Nov. 30	49	6.9	79	71	215	159	8	2	47	20	1	33	0
Salem	62.5	41.7	52.1	98	Aug. 17	-10	Jan. 31	4904	56.55	2.82	Nov. 15-16	33.5	6.4	Jan. 29-30	82	90	72	62	7.1	S	‡40	SSW	Jan. †6	--	7.2	76	57	232	180	15	5	27	18	12	54	5
Sexton Summit CO	55.8	39.0	47.4	92	Aug. 16	8	Jan. 3	6565	47.48	5.20	Oct. 28-29	131.0	12.9	Jan. 10	--	--	--	--	----	---	--	---	----	--	6.5	112	57	196	151	38	4	170	4	33	114	0
Troutdale	60.7	41.4	51.1	96	Aug. 17	3	Feb. 2	5223	61.16	2.23	Jan. 18-19	39.9	7.3	Jan. 13-14	82	89	72	63	8.7	E	‡42	‡E	Jan. †13	--	7.4	64	65	236	192	13	7	22	16	19	46	0
PENNSYLVANIA																																			
Allentown	60.4	40.7	50.6	94	June †26	-8	Dec. 28	5808	40.77	2.76	Sept. 9-10	18.1	4.0	Dec. 15	82	81	58	70	8.1	SW	‡55	ESE	Nov. 25	--	6.9	70	98	197	148	6	29	42	15	23	129	2
Curwensville	54.2	34.7	44.5	87	June 26	-10	Dec. 27	7547	61.89	4.02	Nov. 24-25	107.5	12.7	Mar. 22-23	88 AP	85 AP	67 AP	80 AP	11.4	WNW	‡45	W	Jan. †14	--	7.6	46	88	231	209	36	47	110	0	59	156	8
Erie CO	56.0	42.8	49.4	89	June 23	6	Feb. 20	6105	54.83	2.30	Aug.31 Sept.1	107.3	21.0	Nov. 24-25	83	82	72	78	8.7	---	43	SE	Dec. 7	36	6.9	75	93	197	174	30	40	5	0	47	122	0
Harrisburg	60.8	43.1	52.0	93	June 26	1	Dec. 28	5361	33.73	2.21	Nov. 25	18.0	4.7	Dec. 10-11	77	78	57	66	7.0	WNW	58	SE	Nov. 25	52	7.1	58	101	206	136	5	28	27	5	23	105	0
Park Place CO	54.8	37.8	46.3	87	June 26	-5	Feb. 21	6998	49.58	4.13	Nov. 25	57.2	9.2	Mar. 23	--	83	67	--	----	---	--	---	----	--	7.0	68	96	201	168	19	10	128	0	58	144	5
Philadelphia CO	62.6	47.1	54.9	93	June 27	10	Feb. 21	4578	45.45	3.85	Aug. 3	2.9	1.1	Feb. 1	AP 79	AP 78	AP 56	AP 67	8.0	---	57	SE	Nov. 25	56	6.7	81	104	180	139	1	26	17	9	11	82	0
Pittsburgh	59.8	42.4	51.1	92	June 26	4	Dec. 27	5602	48.38	3.23	June 24-25	69.7	17.5	Nov. 24-25	76	78	59	66	9.7	S	42	NW	Mar. 18	43	7.3	48	116	201	171	17	32	34	3	32	117	0
Reading CO	61.8	44.6	53.2	94	June 26	3	Dec. 28	5059	43.01	6.08	Nov. 25	11.5	3.4	Feb. 1	--	76	--	--	10.7	---	69	E	Nov. 25	49	7.0	67	94	204	135	5	26	9	9	16	104	0

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

Table 10—Continued

State and Station	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Sleet, Hail: Total	Greatest in 24 hrs	Date	Relative humidity: 1:30a. e.s.t.	7:30a. e.s.t.	1:30p. e.s.t.	7:30p. e.s.t.	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation 01 inch or more	Snow, Sleet Hail 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	32° and below	Min temp: 32° and below	Zero and below
PENNSYLVANIA (Cont'd.)																																			
Scranton CO	38.5	40.9	49.7	92	June 26	0	Dec. 28	5979	40.23	3.46	Nov. 25	52.0	8.0	Mar. 21	--	62	--	--	6.3	---	44	E	Nov. 25	48	6.2	88	123	154	156	27	22	7	2	26	126	1
Williamsport	59.1	39.6	49.3	91	June 26	-15	Dec. 28	6097	43.04	3.46	Aug. 18-19	54.5	11.8	Mar. 22-23	81	81	58	69	7.3	---	†77	E	Nov. 25	--	7.1	50	106	209	160	15	30	43	4	29	137	2
RHODE ISLAND																																			
Block Island CO	56.4	44.5	50.5	84	July 31	3	Feb. 21	5498	32.25	1.75	Nov. 25	18.0	4.3	Dec. 26	--	83	75	--	----	---	--	---	----	--	---	93	102	171	113	10	11	51	0	16	82	0
Providence CO	60.3	42.6	51.5	95	June †8	-2	Feb. 21	5493	41.46	3.35	Aug. 19-20	21.7	6.0	Feb. 13-14	AP 78	AP 77	AP 58	AP 70	AP 8.9	AP NW	AP 56	AP SE	AP Nov. 25	AP 50	AP 6.4	AP 87	AP 104	AP 174	AP 121	7	16	AP 46	9	23	102	2
SOUTH CAROLINA																																			
Charleston CO	73.8	59.2	66.5	99	June 24	17	Nov. 25	1729	43.25	8.56	July 7-8	T	T	Mar. †3	87	86	55	76	9.9	---	42	E	Oct. 19	65	5.3	140	100	125	109	0	88	18	27	0	10	0
Columbia CO	74.1	53.9	64.0	101	June 27	15	Nov. 25	2325	38.93	2.78	July 14-15	.4	.2	Apr. †27	AP 83	AP 85	AP 50	AP 67	AP 8.2	AP SW	AP 43	SW	Mar. 8	62	5.4	131	96	138	104	0	44	15	53	2	28	0
Florence	71.5	52.2	63.6	101	June 27	16	Nov. 26	2438	40.26	2.55	July 6-7	T	T	May †25	82	84	51	68	7.5	SSW	--	---	----	--	5.8	104	110	151	117	0	70	28	59	1	51	0
Greenville	70.5	50.8	60.7	98	June 26	11	Nov. 25	3025	41.14	3.98	Oct. 19-20	.4	.4	Dec. 28	78	81	54	66	7.8	SW	49	N	June 14	61	6.3	94	104	167	121	0	51	26	20	2	53	0
Spartanburg	71.0	50.6	60.8	98	June 26	11	Nov. 25	3030	31.76	2.99	Oct. 19-20	.4	.2	Dec. †12	78	81	53	65	----	---	90	W	June 3	--	6.0	102	112	151	114	0	46	23	27	1	56	0
SOUTH DAKOTA																																			
Huron	52.8	29.9	41.3	97	June 22	-25	Jan. 26	8986	17.03	2.60	Sept. 20-21	53.6	9.7	Mar. 7	79	83	60	61	12.3	NW	61	NW	May 5	62	6.1	104	105	156	97	15	37	8	18	99	180	54
Rapid City	56.4	31.0	43.7	97	June 6	-27	Jan. 4	8053	15.87	1.73	Sept. 19-20	69.6	10.3	Mar. 26-27	--	--	--	--	13.8	---	72	NW	Mar. †26	65	6.0	106	111	148	87	18	49	16	17	52	181	32
Sioux Falls	53.8	30.5	42.2	94	Aug. 16	-25	Jan. 26	8650	21.24	3.41	Sept. 20-21	51.3	6.8	Feb. 24-25	79	83	59	63	11.3	NW	60	NNE	Mar. 7	--	6.1	108	93	164	94	18	40	15	9	90	197	51
TENNESSEE																																			
Bristol	66.6	45.0	55.8	90	Sept. 2	5	Nov. 25	4099	54.50	2.34	Jan. 30	11.1	6.2	Nov. 24	81	85	57	68	6.6	WSW	38	SW	Mar. 27	--	6.7	72	111	182	153	2	49	53	1	12	98	0
Chattanooga	70.8	49.8	60.3	96	June 26	4	Nov. 25	3084	65.59	3.75	Mar. 12-13	2.8	2.8	Nov. 24	83	86	57	67	5.7	S	45	S	Mar. 27	46	6.5	96	78	191	134	1	55	49	29	0	67	0
Knoxville	69.2	48.8	59.0	94	June 23	5	Nov. 25	3433	50.51	3.10	Jan. 29-30	7.9	5.5	Nov. 24	81	84	57	66	9.1	SW	50	W	Apr. 4	51	6.6	76	113	176	135	2	52	43	15	6	72	0
Memphis CO	AP 70.8	AP 51.2	AP 61.0	AP 98	June AP26	AP 9	Nov.AP 25	AP 3150	65.48	3.63	Feb. 12-13	1.8	1.0	Nov. 23	AP 81	AP 85	AP 59	AP 65	AP 9.6	AP S	AP 41	AP S	Nov.AP 20	65	AP 6.3	AP 90	AP 102	AP 173	AP 122	2	AP 77	AP 3	AP 38	AP 4	AP 71	AP 0
Nashville	68.7	48.4	58.6	95	June 26	-1	Nov. 25	3678	64.26	3.56	July 5-6	10.8	9.2	Nov. 23-24	84	87	63	69	7.4	S	47	NW	May 29	44	6.6	83	102	180	139	3	58	19	21	10	89	1
TEXAS																																			
Abilene	77.3	52.3	64.8	100	June 24	10	Dec. 6	2334	26.30	3.79	Aug. 1-2	.2	.2	Dec. 5	66	75	46	46	13.5	S	68	NE	May 13	72	5.3	133	94	138	57	0	53	7	98	5	55	0
Amarillo	72.7	43.1	57.9	101	June 25	-1	Jan. 4	3663	23.18	1.95	Aug. 26-27	.5	.5	Dec. 5	62	72	42	40	12.2	S	72	W	Mar. 26	74	4.7	146	121	98	60	0	63	20	54	2	111	1
Austin	79.7	57.8	68.8	100	Aug. 17	16	Dec. 7	1489	25.79	2.72	Sept. 10-11	T	T	Jan. †4	79	85	57	56	9.1	S	43	S	May 31	55	5.6	107	124	134	72	0	41	28	107	1	20	0
Brownsville	84.2	67.0	75.6	98	Sept. 10	29	Dec. 7	380	18.45	7.52	June 2	.0	.0	----	85	88	58	71	11.9	SE	47	S	Mar. 12	62	5.0	137	140	88	48	0	17	16	134	0	2	0
Big Spring	78.1	51.6	64.9	101	Aug. 23	9	Dec. 6	2210	17.31	3.19	May 25-26	T	T	Feb. †13	61	72	44	40	13.0	S	60	SSW	May 25	--	---	144	108	113	56	0	60	13	95	8	56	0
Corpus Christi	83.3	64.4	73.8	102	Aug. 18	24	Dec. 7	620	15.48	2.42	Sept. 16-17	T	T	Apr. 23	85	89	59	72	12.8	SSE	56	S	Mar. 31	70	5.2	128	126	111	53	0	27	26	121	0	3	0
Dallas	76.1	55.1	65.6	101	Aug. 4	12	Dec. 6	2228	38.90	2.59	Feb. 1	1.0	1.0	Jan. 4	72	81	56	54	10.0	S	45	S	Jan. 24	58	5.6	125	92	148	75	1	48	11	79	3	35	0
Del Rio CO	82.2	60.1	71.2	104	May 30	25	Dec. 6	1047	10.70	2.05	Sept. 24	.0	.0	----	64	79	58	45	8.5	SE	37	NW	Mar. 27	66	5.1	132	118	115	49	0	30	11	132	0	8	0
El Paso	79.5	52.1	65.8	103	June 19	16	Nov. 11	1853	6.75	1.64	July 6-7	T	T	Jan. †9	39	49	31	25	10.1	S	70	NW	May 4	84	3.7	192	107	66	34	0	46	1	90	0	31	0
Fort Worth	76.4	54.5	65.5	101	Aug. 8	10	Dec. 7	2224	34.22	2.99	Jan. 12-13	1.0	1.0	Jan. 4	70	79	52	52	14.4	S	54	NW	Sept. 11	--	5.3	133	96	136	74	1	45	10	76	3	40	0
Galveston CO	76.3	66.7	71.5	91	Aug. 18	23	Dec. 6	771	36.14	7.54	June 2-3	.0	.0	----	AP 82	AP 84	AP 69	AP 77	12.5	---	54	N	Nov. 3	AP 62	AP 5.4	AP 110	AP 145	AP 110	AP 84	0	AP 66	AP 19	3	0	2	0
Houston CO	79.8	62.4	71.1	97	Sept. 21	20	Dec. 6	944	40.22	4.03	June 2	T	T	Apr. †16	AP 86	AP 89	AP 60	AP 68	10.3	---	49	N	Jan. 4	57	6.2	87	111	167	100	0	61	18	87	0	5	0
Laredo	87.6	64.4	76.0	105	Aug. 5	29	Dec. 6	590	10.63	1.98	Nov. 16-17	.0	.0	----	69	81	49	43	11.8	SE	‡37	NE	Nov. 3	--	5.3	138	115	122	50	0	34	9	199	0	2	0
Lubbock	74.7	45.3	60.0	101	June 25	1	Dec. 6	3173	15.09	1.99	Sept. 17-18	.2	.2	Dec. 5	63	75	43	40	12.2	S	64	WSW	July 16	--	4.8	149	102	114	61	0	61	16	60	3	98	0
Palestine CO	76.1	57.2	66.7	96	Aug. 25	12	Dec. 7	1779	36.75	3.31	May 29-30	T	T	Mar. 2	--	84	--	58	7.7	---	30	SW	Mar. 27	64	5.9	94	130	141	102	0	49	12	57	2	20	0
Port Arthur	79.0	59.0	69.0	97	Aug. 18	17	Dec. 7	1183	50.98	4.52	June 20	T	T	Dec. †2	91	93	63	76	9.2	S	40	E	Aug. 18	--	5.9	94	137	134	100	0	80	52	74	0	9	0

See reference notes at end of table.

State and Station	Temperature							Degree days	Precipitation						Relative humidity				Wind					Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days									
	Average			Extremes								Snow, Sleet, Hail														Sunrise to sunset						Max. temp		Min. temp	
	Daily maximum	Daily minimum	Monthly	Highest	Date	Lowest	Date		Total	Greatest in 24 hrs.	Date	Total	Greatest in 24 hrs.	Date	1:30a. e.s.t.	7:30a. e.s.t.	1:30p. e.s.t.	7:30p. e.s.t.	Average hourly speed	Prevailing direction	Fastest mile: Speed	Fastest mile: Direction	Fastest mile: Date			Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	90° and above	32° and below	32° and below	Zero and below
TEXAS (Cont'd.)																																	
Port Arthur CO	77.9	63.3	70.6	95	Aug. †18	23	Dec. 7	978	51.65	6.56	June 2-3	T	T	Jan. †4	--	--	--	--	12.5	---	61	SE	June 3	63	5.4	113	140	112	100	0	86	23	54	0	3	0
San Angelo	78.5	53.5	66.0	98	Aug. 5	11	Dec. 6	1992	15.27	1.96	May 10-11	T	T	Feb. †13	63	75	46	41	9.1	S	45	N	May 15	--	5.1	142	92	131	52	0	52	4	97	2	45	0
San Antonio	80.4	58.3	69.4	99	Aug. 3	14	Dec. 7	1312	19.86	5.57	Aug. 13	T	T	Jan. †4	78	85	55	52	8.9	SE	43	N	Nov. 3	57	5.9	96	131	138	70	0	23	30	102	0	18	0
Victoria	83.0	61.6	72.3	100	Aug. 3	20	Dec. 7	881	18.13	2.34	Sept. 18	0.0	0.0	----	84	88	54	64	10.7	SE	--	---	----	--	6.0	91	130	144	74	0	45	42	138	0	6	0
Waco	78.8	56.3	67.2	100	Aug. 4	15	Dec. 6	1905	27.68	1.76	Oct. 19	T	T	Jan. †5	74	82	54	53	10.5	S	50	NNW	Mar. 15	--	5.7	111	111	143	83	0	56	17	91	2	27	0
Wichita Falls	75.0	50.4	62.7	100	June 27	7	Dec. 6	2792	39.25	3.93	July 12-13	1.0	1.0	Jan. 3	67	76	49	49	12.0	SE	59	W	Mar. 15	--	4.8	153	102	110	68	1	59	12	64	7	68	0
UTAH																																	
Milford	66.7	33.0	49.9	99	July †1	-21	Jan. 4	5989	4.48	.69	Mar. 24-25	28.7	9.7	Jan. 2-3	54	65	39	35	9.2	S	‡50	‡ SSW	Apr. †9	--	4.7	136	141	88	38	7	35	18	55	19	175	9
Salt Lake City	63.3	42.7	53.0	99	July 1	3	Feb. 2	5196	13.45	1.43	Feb. 6-7	40.0	5.0	Jan. 28	62	68	45	43	8.1	SE	67	NW	Oct. 27	67	5.6	131	97	137	95	16	25	9	36	23	88	0
VERMONT																																	
Burlington CO	54.5	35.1	44.8	91	June †9	-19	Feb. 21	7642	30.83	3.60	Dec. 4-5	67.3	5.6	Jan. 24	78	77	60	69	10.0	SSW	72	SE	Nov. 26	50	7.1	60	103	202	158	22	15	17	2	66	163	21
VIRGINIA																																	
Cape Henry CO	66.6	52.9	59.8	96	May †6	20	Nov. 26	3153	34.04	2.50	July 8-9	1.5	1.0	Feb. 26	--	80	66	74	12.4	---	57	NW	Nov. 20	69	5.9	104	109	152	121	1	43	26	18	1	36	0
Lynchburg	66.1	46.2	56.2	93	June 27	11	Nov. 26	4109	46.40	3.49	Aug. 21-22	15.4	6.2	Dec. 10-11	79	79	54	68	8.9	SSW	45	SE	Dec. 7	54	6.5	83	104	178	141	4	44	40	12	6	92	0
Norfolk CO	68.6	52.9	60.7	97	June 27	21	Nov. 26	3011	36.39	2.78	July 9	1.9	.8	Mar. 16-17	82	80	59	73	9.5	---	39	NW	Aug. 6	58	6.4	84	112	169	127	0	46	34	27	1	37	0
															AP	AP	AP	AP	AP	AP															
Richmond CO	68.1	48.6	58.3	99	June 27	16	Nov. †25	3620	36.40	1.86	Aug. 20	10.8	5.0	Mar. 16-17	83	84	55	72	7.4	SSW	37	SW	Mar. 8	56	6.6	75	104	186	111	4	44	17	23	2	74	0
Roanoke	66.1	45.7	55.9	92	June 26	9	Nov. 25	4152	41.67	3.09	Sept. 9-10	14.7	8.2	Nov. 24-25	77	78	54	65	9.4	SE	--	---	----	--	6.7	78	107	180	140	4	41	36	8	7	96	0
Urbanna CO	67.5	48.3	57.9	99	June 27	14	Feb. †27	3582	34.49	1.88	July 6	8.0	3.8	Mar. 16-17	--	--	--	--	---	---	--	---	----	--	6.5	77	119	169	131	2	40	11	25	1	80	0
Washington Nat'l. AP	65.4	48.3	56.9	96	June 24	15	Mar. 3	4057	47.90	3.86	Aug. 19-20	8.8	3.2	Dec. 10-11	75	76	53	64	10.6	SSW	52	E	Nov. 25	50	6.8	81	88	196	134	3	33	13	13	7	76	0
Washington, D.C. CO	65.9	48.2	57.0	95	June 24	14	Dec. 27	4046	46.39	3.11	Sept. 9-10	6.7	3.3	Dec. 10-11	AP 75	AP 76	AP 53	AP 64	7.2	AP SSW	40 40	W NW	Mar.23 June10	55	6.8	80	89	196	130	3	34	13	20	7	75	0
WASHINGTON																																	
Ellensburg	56.4	33.3	44.9	97	July †24	-28	Jan. 31	7633	11.86	.48	Nov. 21-22	71.8	5.2	Nov. 29-30	74	82	62	56	10.1	NW	--	---	----	--	6.4	99	82	184	129	25	6	45	20	39	163	23
Kelso	59.5	40.3	49.9	92	Aug. 17	-1	Jan. 18	5539	53.31	2.37	Feb. 23-24	33.5	7.7	Jan. 13	--	--	74	68	----	---	--	---	----	--	7.6	56	66	243	191	11	--	--	4	17	58	2
North Head CO	53.6	44.9	49.2	89	Sept. 21	13	Jan. 14	5570	79.88	2.85	Jan. 18-19	19.6	7.4	Jan. 13-14	88	89	88	83	15.5	---	68	SE	Oct. 25	26	8.1	33	72	260	239	5	9	87	0	5	27	0
Olympia	58.7	38.9	48.8	94	Aug. 1	-1	Feb. 1	5892	66.71	2.39	Feb. 23-24	48.4	13.7	Jan. 12-13	88	95	77	67	5.8	S	‡35	‡S	Oct. 27	--	7.4	61	73	231	193	14	1	77	5	18	75	1
Port Angeles	52.2	42.4	47.4	76	July †17	11	Jan. †13	6350	25.38	1.01	Feb. †7-8	28.7	5.6	Jan. 14-15	86	88	80	78	9.9	W	‡49	‡ NNE	Jan. 13	--	7.4	59	74	232	172	13	2	41	0	17	26	0
Seattle CO	58.7	45.0	51.9	90	Aug. 26	11	Jan. 14	4866	46.95	2.32	Mar. 3-4	32.0	10.0	Jan. 13	AP 80	AP 88	AP 72	AP 63	9.7	S	57	SW	Oct. 27	38	7.2	65	77	223	177	10	1	11	1	18	26	0
Spokane	55.4	36.1	45.8	96	Sept. 2	-24	Jan. 29	7360	23.00	1.03	June 24	95.6	13.0	Jan. 6-7	67	76	59	53	9.3	SSW	56	SW	Oct. 27	56	6.6	84	94	187	146	30	8	47	17	36	142	20
Stampede Pass CO	43.5	31.2	37.4	82	Aug. †17	-11	Jan. 13	10045	95.14	3.06	Oct. 9-10	493.3	18.5	Mar. 26-27	--	81	82	80	12.1	---	67	E	Feb. 3	--	7.4	77	52	236	225	96	5	237	0	107	210	20
Stevenson CO	57.3	42.1	49.7	96	Aug. 19	-11	Feb. 3	5771	85.86	2.95	Feb. 23-24	96.1	15.1	Jan. 14-15	--	--	71	64	----	---	--	---	----	--	7.6	66	50	249	199	24	8	18	7	22	57	4
Tacoma CO	57.4	43.8	50.6	86	Aug. 26	10	Jan. 31	5267	42.70	1.77	Mar. 16-17	34.0	8.3	Jan. 12-13	--	--	74	--	8.2	SW	50	NE	Jan. 13	41	6.8	74	94	197	189	8	3	15	0	18	33	0
Tatoosh CO	51.1	43.1	47.1	69	Aug. 17	14	Jan. 13	6436	101.64	2.80	Oct. 9-10	34.5	9.6	Jan. 25-26	86	88	85	83	15.3	E	72	NE	Jan. 13	32	8.3	28	66	271	227	12	6	60	0	16	29	0
Walla Walla CO	61.6	43.1	52.4	103	July †25	-16	Jan. 30	5456	20.91	1.61	June 6-7	38.4	4.8	Jan. 25-26	--	--	56	--	5.3	---	54	SE	Oct. 26	49	6.4	100	78	187	136	15	11	22	38	26	61	12
Yakima	61.5	34.6	48.1	99	July †4	-25	Feb. 1	6618	11.69	.63	Jan. 13	14.9	6.7	Jan. 13	69	79	53	48	6.9	---	--	---	----	--	6.3	103	85	177	103	18	5	30	44	32	150	17
WEST VIRGINIA																																	
Charleston	65.3	44.5	54.8	93	May 5	6	Nov. 25	4405	60.64	2.38	Sept. 21	32.3	15.1	Nov. 24-25	83	83	60	69	6.9	SW	45	WSW	Oct. 8	--	7.4	40	109	217	183	8	47	108	5	14	102	0
Elkins	60.9	38.1	49.6	87	May †5	-3	Dec. 20	5834	49.21	2.92	June 24-25	82.3	18.5	Nov. 24-25	88	89	62	74	5.1	WNW	50	SE	Dec. 7	41	7.9	31	90	244	195	26	53	86	0	34	143	3
Huntington CO	68.2	45.6	56.9	95	May 5	4	Feb. 26	3972	56.07	1.86	Sept. 21	28.0	8.8	Nov. 26	--	--	--	--	----	---	--	---	----	--	---	---	---	---	155	--	--	--	13	8	96	0

See reference notes at end of table.

ANNUAL CLIMATOLOGICAL DATA

Table 10—Continued

YEAR 1950

State and Station	Temperature: Averages: Daily maximum	Temperature: Averages: Daily minimum	Temperature: Averages: Monthly	Temperature: Extremes: Highest	Temperature: Extremes: Date	Temperature: Extremes: Lowest	Temperature: Extremes: Date	Degree days	Precipitation: Total	Precipitation: Greatest in 24 hrs	Precipitation: Date	Precipitation: Snow, Sleet, Hail: Total	Precipitation: Snow, Sleet, Hail: Greatest in 24 hrs	Precipitation: Snow, Sleet, Hail: Date	Relative humidity: 1:30a. e.s.t.	Relative humidity: 7:30a. e.s.t.	Relative humidity: 1:30p. e.s.t.	Relative humidity: 7:30p. e.s.t.	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Sleet, Hail 1.0 or more	Thunderstorms	Heavy fog	Max temp: 90° and above	Max temp: 32° and below	Min temp: 32° and below	Min temp: Zero and below
WEST VIRGINIA (Cont'd.)																																			
Parkersburg CO	63.7	43.9	53.9	92	June 26	4	Dec. 27	4795	49.99	2.67	June 16	43.1	16.8	Nov. 25-26	--	--	--	--	6.3	---	33	S	Mar. †27	42	7.2	61	93	211	158	7	48	--	7	24	108	0
Petersburg CO	64.7	41.3	53.0	94	July 31	4	Dec. 28	4946	35.37	1.95	Aug. 23-24	19.2	7.1	Nov. 24-25	--	84	55	69	----	---	--	---	-----	--	7.0	71	89	205	142	5	32	45	10	14	124	0
WISCONSIN																																			
Green Bay	50.9	30.8	40.9	89	July 11	-19	Feb. 25	8951	30.10	2.05	July 12	54.9	8.2	Feb. 13-14	77	77	59	65	10.5	NE	109	SW	May 5	55	6.5	88	100	177	118	19	35	33	0	93	179	39
La Crosse	52.7	31.9	42.3	90	Aug. 16	-26	Jan. 27	8505	28.01	2.81	June 12-13	51.3	8.6	Feb. 13-14	80	82	62	67	9.3	NW	61	S	May 5	--	6.5	91	91	183	106	34	41	14	2	89	165	47
Madison CO	53.0	36.2	44.6	89	May 24	-11	Dec. 27	7727	40.22	4.21	July 15-16	53.5	9.6	Feb. 13	AP 78	AP 79	AP 58	AP 67	AP 12.1	AP W	AP 77	AP SW	May 5	AP 61	AP 6.4	AP 101	AP 81	AP 83	AP 119	AP 12	AP 40	AP 23	0	82	151	22
Milwaukee	53.3	36.4	44.9	90	May 24	-12	Dec. 27	7585	32.64	3.30	July 19-20	59.0	7.9	Mar. 10-11	78	79	63	70	12.8	WNW	72	SW	May 5	45	6.6	83	83	199	127	15	34	25	1	68	147	16
WYOMING																																			
Casper	57.8	31.4	44.6	93	Aug. †31	-26	Jan. 29	7587	12.75	1.80	Sept. 19-20	92.5	14.1	May 3-4	62	68	44	43	12.8	SW	--	---	-----	--	6.8	101	106	158	92	28	39	7	8	34	173	21
Cheyenne	58.0	31.9	45.0	90	July 1	-20	Jan. 3	7324	14.40	1.24	May 24-25	48.2	7.5	Apr. 28-29	63	66	41	45	12.8	W	61	W	Jan. 15	70	5.7	107	120	138	95	14	56	19	1	29	175	14
Lander	57.4	30.8	44.1	93	Sept. 4	-23	Jan. 3	7736	15.45	1.97	Sept. 19-20	85.2	11.9	May 6-7	59	64	45	42	7.4	---	70	SW	Oct. 6	65	5.3	119	131	115	75	38	36	1	9	36	194	15
Rock Springs	54.4	30.3	42.4	89	July 1	-11	Jan. 3	8236	10.61	1.05	Sept. 19-20	63.0	7.5	May 3-4	63	71	48	47	14.7	W	‡62	‡S	June 7	--	6.0	94	121	150	87	22	41	13	0	56	200	18
Sheridan	56.9	29.5	43.2	99	Sept. 3	-27	Jan. 25	8135	14.53	.97	July 15-16	91.9	11.1	Apr. 28-29	--	--	--	--	8.3	NW	61	SW	Oct. 27	65	6.3	97	105	163	114	32	31	4	16	40	192	37
PACIFIC AREA																																			
Canton Island	■7.6	77.4	82.5	94	Oct. 20	72	July 19	0	15.09	2.12	July 19	.0	.0	----	76	80	79	64	----	---	--	---	-----	--	4.7	122	193	50	70	0	1	0	87	0	0	0
Hilo	80.4	65.6	73.0	93	Aug. 15	60	Mar. †7	0	139.15	8.42	Feb. 7	.0	.0	----	85	87	81	71	5.4	SW	45	SSE	Aug. 15	--	7.6	12	143	210	284	0	15	0	1	0	0	0
Honolulu CO	79.3	70.5	74.9	85	Oct. 28	63	Jan. 7	0	32.28	4.43	Jan. 22	.0	.0	----	AP 72	AP 77	AP 73	AP 58	9.2	---	45	SW	Jan. 11	67	5.2	115	162	88	153	0	8	0	0	0	0	0
Libue	79.8	68.3	74.1	85	Oct. 1	56	Dec. 22	1	------	----	----	.0	.0	----	--	--	79	69	----	---	‡26	‡NE	Apr. 29	--	6.7	---	---	---	---	0	--	--	0	0	0	0
Wake Island	83.6	74.9	79.2	88	June 10	65	Nov. 24	0	54.90	4.43	Aug. 3-4	.0	.0	----	--	--	--	--	11.1	---	--	---	-----	--	5.4	121	141	103	192	0	7	0	0	0	0	0
WEST INDIES															AP	AP	AP	AP								AP	AP	AP								
San Juan P.R.	82.2	72.6	77.4	92	Sept. †4	68	Mar. 17	0	72.64	4.16	Nov. 15-16	.0	.0	----	87	83	74	82	9.2	E	40	E	July 31	45	6.5	39	198	128	229	0	44	0	8	0	0	0
VIRGIN ISLANDS																																			
St. Croix	■4.5	72.4	78.4	91	Aug. †14	65	Mar. 17	0	51.18	3.95	Feb. 3-4	.0	.0	----	■6	79	70	84	12.2	E	--	---	-----	--	7.0	23	189	153	216	0	30	0	11	0	0	0
ALASKA																																			
Anchorage	42.0	23.7	32.9	80	Aug. 14	-21	Feb. 6	11606	8.61	.79	June 15	48.3	■.9	Dec. †3-4	72	77	72	■1	4.0	N	66	NE	Nov. 23	45	7.0	79	76	210	63	13	3	44	Φ24	121	209	66
Annette	48.6	37.9	43.3	83	June 17	2	Jan. 1	7857	93.62	4.23	Aug. 25-26	43.1	9.5	Feb. 4-5	81	84	77	73	11.0	ESE	‡57	‡E	Dec. 29	—	7.9	53	51	261	213	12	0	16	Φ20	40	88	0
Barrow CO	18.6	7.2	12.9	60	Aug. 8	-50	Feb. 11	18906	6.22	.51	Oct. 30-1	30.2	5.0	Oct. 30-1	80	81	80	78	12.9	ENE	63	W	Nov. 27	--	7.5	51	84	230	103	7	0	71	Φ 0	249	311	144
Bethel	37.3	23.1	30.2	81	Aug. 12	-26	Dec. 22	12566	17.00	.96	Sept. 7-8	35.4	6.0	Jan. 3-4	83	88	85	75	9.0	N	‡50	‡N	Feb. 12	--	7.8	49	47	269	149	12	1	35	Φ12	137	218	74
Cordova	44.5	27.4	36.0	77	June 5	-15	Feb. 5	10470	66.77	3.70	Sept. 11-12	72.8	6.4	Jan. †1	76	85	87	80	3.8	E	‡35	‡ESE	Apr. 19	--	7.5	75	47	243	191	22	1	10	Φ10	62	206	27
Fairbanks	37.4	14.3	25.8	87	June 18	-52	Feb. 13	14176	10.05	1.33	June 16-17	81.2	11.1	Nov. 12-13	73	84	75	61	4.5	N	50	SW	Nov. 13	46	6.9	73	87	205	92	23	16	45	Φ64	156	230	120
Galena	34.0	17.4	25.7	82	June †23	-45	Feb. 15	14248	11.54	.95	June 26	42.9	4.6	Jan. 1-2	66	74	71	62	8.2	N	38	E	Jan. †1	--	6.6	82	85	188	97	15	10	13	Φ35	171	220	113
Gambell CO	31.7	24.1	28.0	58	July †22	-12	Mar. 19	13407	31.10	1.82	July 16-17	191.2	14.1	Apr. 2-3	--	91	--	88	17.9	NNE	88	NW	Dec. 21	--	8.8	18	45	302	189	55	0	49	Φ 0	188	228	25
Juneau	45.2	30.2	37.7	83	June 17	-19	Jan. 1	9847	38.61	2.13	Sept. 21-22	92.0	12.0	Dec. 5-6	80	84	77	70	6.4	E	49	SE	Mar. 3	35	7.7	64	46	255	186	25	0	15	Φ31	78	181	24
Kotzebue	30.4	18.0	24.2	79	July 23	-32	Feb. 12	14764	10.31	.63	Aug. 8	33.2	1.8	Dec. 9-10	80	83	82	78	16.2	ESE	‡88	‡SSE	Nov. 10	--	7.4	67	52	246	137	11	0	25	Φ11	188	245	96
McGrath	36.6	15.8	26.2	84	July 23	-49	Feb. 15	14033	17.17	2.39	June 20-21	65.6	11.6	Jan. 1	72	82	76	64	4.5	NW	--	---	-----	--	6.8	89	61	215	108	19	10	16	Φ40	154	229	112
Nome	34.9	21.1	28.0	72	Aug. 15	-26	Feb. 12	13377	24.24	1.43	Aug. 8	81.7	7.0	Jan. †2	84	86	84	82	10.8	N	75	E	Jan. 12	--	7.4	62	57	246	136	28	0	33	Φ2	165	227	68
Northway	33.3	10.4	21.8	87	June †17	-59	Jan. 1	15638	9.47	1.53	July 30	38.7	5.5	Jan. 23-24	72	81	71	60	4.6	NW	‡46	‡NW	Jan. 5	--	7.8	57	73	235	87	14	9	9	Φ45	169	242	151
St. Paul Island	39.9	31.8	35.9	60	Aug. 11	11	Feb. 24	10512	28.71	1.92	July 20-21	38.1	3.2	Dec. 22-23	89	90	89	84	----	---	--	---	-----	--	9.0	11	44	310	244	11	0	14	Φ 0	53	192	0
Umiat	23.3	6.3	14.8	79	July 14	-57	Feb. 26	18213	5.51	.60	Aug. 5-6	36.1	2.7	Nov. 5-6	81	84	81	78	7.7	E	‡58	WNW	Jan. †17	--	7.5	x39	x81	x200	109	12	2	39	Φ19	221	272	159
Wales	30.4	20.1	25.3	70	Aug. 15	-22	Mar. 30	14357	12.81	.82	Sept. 8-9	43.3	2.2	May 10-11	--	--	--	--	----	---	--	---	-----	--	9.0	33	39	293	164	13	--	--	Φ1	191	248	62
Yakutat	44.6	29.9	37.3	78	July 9	-13	Jan. 1	10009	85.99	2.94	Aug. 28-29	140.8	18.0	Sept. 30-31	87	89	83	77	7.5	ESE	‡56	ISE	Sept. 21	--	8.1	40	68	257	188	32	0	24	Φ10	57	192	21

Data from airport unless otherwise indicated.
CO after station name indicates city office data, except where certain elements are from the airport, which are indicated by AP above each value.
† Also on later dates.
‡ Data entered in column headed "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
Airport data beginning August 30, 1950.
e Data are from city office records up to and including October 16, 1950, airport data thereafter.
†† Data are from city office records up to and including June 1950, and airport data thereafter.
x Sun remains below horizon for 45 days.
Φ Number of days Maximum 70° F. or above for Alaskan Stations.

GENERAL SUMMARY OF TORNADOES IN THE UNITED STATES

YEAR 1950

The year 1950 ranked fourth in the total annual number of tornadoes reported in the United States during the period from 1916 through 1950. The 209 such storms were 60 more than the annual average for the past 35 years, but the year 1949 exceeded the 1950 total by 53 storms, 1938 by 11, and 1933 by 51. Tornadoes were reported during each month, on 90 days of the year, and in 30 States. Three tornadoes crossed State boundaries, one of which caused damage in three States on February 12. Kansas was visited by 33 tornadoes, the greatest number in any State during 1950; but, only one of these storms caused damage slightly over a quarter of a million dollars, and only one death was reported in the State for the year. Oklahoma was second for the year in reporting 23 tornadoes, but this number was 35 less than the record number in that State last year. Texas followed with 21 storms, the same number as reported for that State in 1949. May, usually the month of greatest occurrence, recorded the highest number of storms of tornadic character, with 60 reported. June was second with 30 tornadoes, and July was third with 27.

Although the number of tornadoes during 1950 was about 40 percent greater than usual, the death total of only 70 was less than 31 percent of the normal loss of life. In only six previous years during the 35-year record have fewer fatalities resulting from tornadoes been reported, and in 1935 the same number occurred. The greatest loss of human life during the past year resulted from the February storms, when 45 persons lost their lives in tornadoes which swept through Texas, Louisiana, Arkansas, Mississippi, and Tennessee on the 11th, 12th, and 13th. Twenty-eight deaths occurred in Louisiana on the 12th. All nine fatalities, the year's total for Tennessee, resulted from this series of tornadoes. Five of the 11 Texas deaths and 3 of the Mississippi total of 6 occurred during the same period. The tri-State tornado which swept through Texas, Louisiana, and Arkansas on February 12 caused the greatest loss of life in a single tornado during the year, with 18 fatalities, all occurring in Louisiana. During 1950, 571 persons sustained injuries during the passage of tornadoes over the United States

The total amount of estimated damage for the entire United States was reported as $13,602,340 which is a trifle less than the 35-year average for the country. Texas suffered the greatest destruction of property during 1950, with a loss of $2,153,800. Ohio followed very closely, with damage estimated at $2,020,000. Louisiana was third, with property damage of $1,154,000. Damage in Kansas, Arkansas, Oklahoma, Mississippi, and Illinois each exceeded $800,000. New Mexico reported the least destruction of property of any State in which tornadoes occurred, with losses of only $350. Five tornadoes were reported in Wyoming, where the damage was described as small. In 18 States and the District of Columbia no tornadoes were reported during the year.

July was the month in which the greatest amount of property destruction, estimated at nearly $3,000,000, occurred. This is rather unusual, as July rates sixth in the average monthly damage caused by tornadoes over the 35-year period. The total of $2,000,000 resulting from tornadoes in Ohio on July 19, 1950 was responsible for the great amount during that month. During the month of June the second greatest amount of damage of over $2,400,000 occurred. May followed with a total of over $1,600,000. March which has the greatest monthly average amount of damage of about $2,800,000 over the period 1916-1950 was fourth during 1950 with only a little over $1,500,000 reported.

Tornado activity was greatest in 1950 between 6 and 8 p.m. This is somewhat unusual as these storms appear generally between 3 and 7 p.m., during which time 43 percent of the total number reported for the past 35 years have occurred. One hundred and forty-four or 71 percent of the tornadoes on which the time was reported occurred between noon and midnight. Fifty-eight or about 29 percent were reported between midnight and noon. The hour of least occurrence during the year was between 8 and 9 a.m. Following the usual pattern of the morning occurrence in the Southern States, 13 of the 20 tornadoes in Louisiana occurred between the hours of midnight and noon. In Mississippi all but one of the year's tornadoes were reported during the a.m. hours. The two storms in each of the States of Alabama, Tennessee, and Kentucky occurred during the early morning.

The only single tornado with resulting damage of $1,000,000 or over occurred in Ohio. On the afternoon of July 19, tornadoes visited Van Wert and Allen Counties, Ohio. Although no lives were lost, the property damage around Lima, Ohio, amounted to over $2,000,000. In Van Wert County the losses were reported as considerable, but no estimate of damage was available. The single tornado causing the next greatest damage swept over Kenny, in Austin County, Texas, at about 4 p.m. on June 5. The losses incurred were estimated at $995,000, with this amount about evenly distributed between property and crop damage.

The tri-State tornado with a path of 115 miles which traveled across Texas, Louisiana, and Arkansas on February 12 was the longest tornado path recorded during the year. The widest path of destruction reported was 6 miles in Kansas on June 25, but evidently most of this was due to straight, high winds accompanying a small funnel cloud. The narrowest reported path was 10 yards in Arkansas on January 13. The average length of tornadic paths during 1950 was about 12 miles, and the average with, 438 yards.

Ten of the tornadoes included in the yearly total were observed as funnel clouds which failed to reach the ground. Three were in Kansas, on three different days, May 18, July 1, and August 26. Three were also noted in Arizona, two on July 7 and one on July 8. Illinois reported a funnel cloud on June 14, Iowa one on June 15, West Virginia one on August 9, and Wyoming one on June 18. One of the Florida tornadoes occurred as a waterspout on August 13. It moved northward over Lake Apopka in Orange County. Two of the Florida tornadoes were associated with the August hurricane. One moved northwestward in the northeastern quadrant of the hurricane on August 30, damaging 23 homes in Franklin County to the extent of $35,000. The other twister also occurred in the northeastern quadrant of the hurricane, striking in Jackson County, Fla., on August 31. The damage amounted to $6,000 when two buildings were destroyed and three damaged.

The tabulations for 1950 are presented in Tables 11 and 12 which follow. They are derived from data received from the different section centers of the United States. The number of tornadoes, tornado days, and resulting losses of life and property during the period 1916-50 are given in Table 13. The "Tracks of Tornadoes during 1950" are shown by chart.

TORNADO DATA

Table 11 — YEAR 1950

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons: Killed	Number of persons: Injured	Estimated damage: Property (exclusive of crops)	Estimated damage: Crops	Remarks
ALABAMA										
1. April 18	1:30 a.m.	Mobile	NNE	12	100	0	15	$235,000		Eleven houses and a warehouse destroyed.
2. April 18	1:45 a.m.	Baldwin	NNE	2	150	0	0	250,000		One house and three other buildings damaged.
ARIZONA										
1. July 7	11:25 a.m.	Chino Valley	N			0	0	0		Tornado cloud formed 5 to 6 miles south of Chino Valley. Funnel appeared to be about 1,000 feet long and at its lowest point reached within about 1,000 feet of the surface.
2. July 7	2:30 p.m.	Fort Huachuca				0	0	0		Tornado cloud observed about 5 miles northeast of Fort Huachuca. Did not reach ground.
3. July 8	11:42 a.m.	Navajo	NNE			0	0	0		Funnel cloud observed to southwest of Winslow about midway between Meteor Crater and Chavez Pass. Did not reach ground. First funnel reached half way to ground then withdrew into cloud, followed a few seconds later by another funnel which was a very thin cylinder with no appreciable taper. This funnel reached near the ground and broke loose from the cloud and evaporated.
ARKANSAS										
1. Jan. 13	5:25 a.m.	Polk	(1)	(2)	10	1	1	1,000		One house and furnishings destroyed 2 miles southeast of Cove.
2. Feb. 12	12:30 p.m.	Pulaski	(1)	(2)	100	0	0	450		Occurred at Cane Creek Community, 12 miles north of Sheridan. One house roof destroyed. One chicken house blown away. Approximately two acres of timber blown down. One barn and outhouses blown away.
*3. Feb. 12	3 p.m.	Union	(1)	5	100	0	0	20,000		Continuation of Louisiana storm number 1. Two houses destroyed. Several barns and outhouses blown down. Power lines to Mt. Holly blown down. Porch blown from another house. Store located five miles north of Mt. Holly struck. Heavy winds struck small oil field south of Mt. Holly, toppling two derricks.
4. Mar. 26	7:20 p.m.	Clark	NE	15	150	0	3	35,000	200	Occurred at Arkadelphia. Three houses and 13 farm buildings destroyed, 6 homes and 16 other buildings damaged. Some livestock killed.
5. Mar. 26	7:31 p.m.	Izard	NE	6	200	0	1	150,000	$3,250	Destroyed a church, a large consolidated school building, 30 houses, and many barns at Violet Hill community.
6. Mar. 26	8:30 p.m.	Pulaski	NE	10	600	0	7	500,000	(5)	Storm first struck on the southwestern outskirts of Little Rock where it damaged screen of drive-in theater. Two cars in theater lot overturned, injuring five persons. Storm then progressed northeastward through residential district, where it caused considerable damage to roofs. It then struck business district of city, causing extensive damage to roofs, windows, and plate glass, signs, and brick and masonry parapits. A large radio antenna mast toppled from roof of Gazette Building. Upon leaving the business district of Little Rock, storm crossed Arkansas River into North Little Rock, where it did considerable damage to roofs, trees, and signs, and injured two persons. Principal damage caused by high winds. Considerable water damage caused by rain entering buildings through torn roofs and broken windows. Some small hail, but not enough to cause appreciable damage.

See reference notes at end of table.

TORNADO DATA

Table 11—Continued

YEAR 1950

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
ARKANSAS (Cont'd.)										
7. Mar. 26	9:15 to 11:30p.m.	Prairie	NE	15	3/1	0	15	$150,000	(5)	This storm at Hickory Plains was apparently a continuation of the one that struck Little Rock. Extensive damage to farm buildings, farm equipment, livestock, and timber. Because of the season, damage to crops very small. Some moderate hail.
8. Mar. 26	11:30p.m.	Woodruff	NE	5	800	0	2	(6)	(6)	This storm in Gregory-McClelland area was apparently a continuation of the storms that struck Little Rock and Hickory Plains. About ten houses demolished or damaged extensively. Several barns destroyed.
9. April 2	3 p.m.	Jackson	NE	2	3/2	1	4	8,300	$250	One home completely destroyed, one unroofed. Five barns, one hay shed, two garages, and ten tons of hay destroyed about 1 mile northwest of Tuckerman.
10.April 2	6 p.m.	Mississippi	E	1	100	0	0	6,000		Two houses heavily damaged. Considerable damage to farm buildings, power and telephone lines, and sign boards at Yarbro. Some small hail.
11.Aug. 24	3:45 p.m.	Arkansas	NE	5	200	0	7	15,000	3,500	Storm moved across southwestern and central sections of Almyra. One home, two barns, three garages, and several outbuildings damaged. About ten acres of rice ready for harvest destroyed, and some hay and lespedeza damaged.
12.Dec. 2	4:25 p.m.	Izard	NE	8	(4)	0	0	(5)	(5)	Storm quite severe, but path very narrow. Since there were no communities in the path, damage was slight. Two houses and a barn destroyed near Myron, and several other barns either damaged or destroyed. Several chicken houses destroyed and some livestock injured.
CALIFORNIA										
(None reported)										
COLORADO										
1. Aug. 5	4:30 p.m.	Sedgwick	E	5	100	0	0	50,000	100,000	Accompanied by heavy hail. Stones ranged in size of golf to baseballs.
CONNECTICUT										
1. July 12	5 p.m.	Middlesex	E	10		0	0	4,000		Tobacco barn destroyed; other local minor damage.
2. July 14	7:30-7:35 a.m.	Fairfield	E	5	100	0	0	100,000		Described as a "twister", lashing a 300-foot swath through center of Ridgefield.
FLORIDA										
1. March 16	10:15-10:16 a.m.	Flagler	E	(1)	150	0	0	2,000		Passed over Marine Studio's tanks and grounds at Marineland.
2. May 8	2 p.m.	Volusia	NE	1/4	30	0	0	1,000		
3&4. May 15	Noon-12:35 p.m.	Orange	ESE	6 to 8	(1)	0	0	25,000		Apparently two tornadoes moved through the city of Orlando. Paths indefinite.
5. Aug. 13	(1)	Orange	N	3	20	0	0	0		Water spout over Lake Apopka.
6. Aug. 30	5-5:10p.m.	Franklin	NW	1/2	50	0	0	35,000		Tornado at Apalachicola occurred in northeast quadrant of hurricane.
7. Aug. 31	Early morning	Jackson	(1)	(1)	(1)	0	0	6,000		Occurred in northeast quadrant of hurricane.
GEORGIA										
1. May 30	Afternoon	Whitfield	ENE	(2)	(4)	0	0	1,000		Occurred in two local areas southeast of Dalton. Automobile heavily damaged, 2 small buildings blown over and several other buildings damaged slightly.
2. June 4	7 a.m.,	Carroll	E	2	200	0	0	3,500	750	Storm struck 3 miles south of Villa Rica. Several barns heavily damaged, with moderate damage to roofs of 8 homes and fields of corn and oats. Some stored crops blown away.

See reference notes at end of table.

TORNADO DATA

Table 11—Continued — YEAR 1950

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
GEORGIA (Cont'd.)										
3. June 4	9 a.m.	De Kalb	E	3	100	0	1	$6,000		Occurred in suburbs near Decatur. Several power lines and poles blown down, small garage destroyed, one home heavily damaged, and many trees uprooted.
4. June 7	6:30 p.m.	Lamar	ENE	2	300	0	0	1,500		Storm passed through southeastern part of Barnesville. A tourist camp heavily damaged, and a number of highway utility poles and lines blown down.
IDAHO										
(None reported)										
ILLINOIS										
*1. Jan. 3	11:10 a.m.	Madison	NE	(1)	100	0	0	50,000		Tornado originated in St. Louis County, Missouri. Three homes ruined, 11 damaged. Oil refinery at Roxana damaged.
2. Jan. 3	11:55 a.m.	Montgomery	NE	4	130	0	3	100,000		Tornado moved across Fillmore Township, destroying and damaging a number of farm homes and buildings.
3. Jan. 25	Evening	Kankakee	(1)	(1)	100	0	0	75,000		Several buildings near Momence damaged.
4. Mar. 27	4:30 p.m.	Champaign	NE	3	50	0	0	1,000		Several outbuildings destroyed on one farm, and power lines downed. Funnel reported to be a "whitish" color.
5. June 13	3 a.m.	Carroll	NE	(1)	(1)	0	0	20,000	(6)	School building and rural structures damaged. Some livestock destroyed.
6. June 14	1:04 p.m.	Champaign	(1)	(1)	(1)	0	0	0		Tornado funnel observed 10 miles southeast of Chanute Air Force Base. No damage occurred as funnel did not reach surface.
7. July 16	10:15 p.m.	Livingston	NE	1	33	0	0	6,000		House de-roofed, windmill downed, 2 barns damaged.
8. Dec. 2	3 p.m.	Madison and Macoupin	ENE	25	50	1	3	12,000	$100	Originated near Fosterburg; apparently traveled aloft until it reached Mt. Olive. Motorist killed, 3 injured near Mt. Olive when their car was carried 600 feet.
9. Dec. 2	4 p.m.	Madison and Bond	ENE	22	200	2	25	550,000	(1)	Began near Highland, moved to Pocahontas and Greenville. A hundred homes demolished at Greenville, where most of personal injuries also occurred.
10. Dec. 2	5:30 p.m.	Randolph	ENE	11	50	0	0	45,000	(1)	Originated 4 miles northwest of Sparta. Heavy damage to farm properties and some coal mining equipment. Hail damage of $30,000 reported with this storm.
INDIANA										
1. July 3	6:20 p.m.	St. Joseph	NE			0	0	0		Small tornado near South Bend struck in an open field. No damage.
2. July 19	5:45 p.m.	Allen	NE	3		0	0	50,000		Struck Fort Wayne.
3. July 19	1:30 p.m.	Fountain and Montgomery	NE	7	200	0	0	40,000	40,000	Struck near Newton and Wingate.
IOWA										
1. May 4	9 p.m.	Fremont	(1)	(1)	(4)	0	0	(1)		Small tornado 4 miles northwest of Tabor; caused damage on 2 farmsteads.
2. May 8	7:20 p.m.	Montgomery	(1)	(1)	(4)	0	0	28,000		Small tornado struck Red Oak Airport; destroyed hangar and aircraft.
3. June 15	8 p.m.	Story	(1)	8	300	0	5	26,000	5,000	Two farmsteads demolished; corn and soybean crops destroyed.
4. June 15		Lyon and Osceola				0	0	0		Tornado clouds.
5. July 1	Near sunset	Buchanan	(1)	(1)	(4)	0	0	(1)	(1)	Tornado uprooted about 100 trees, damaging homes in Independence area.
KANSAS										
1. April 28	Afternoon	Coffey	NE&E	20	1 1/2	0	0	30,000		Several funnel clouds; barns and small buildings damaged. Numerous trees uprooted.
2. May 4	Evening	Nash	(1)	(1)	(1)	0	0	(6)		Small twister north of Liebenthal destroyed 2 barns and 2 windmills.

See reference notes at end of table.

TORNADO DATA

Table 11—Continued

YEAR 1950

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
KANSAS (Cont'd.)										
3. May 4	11:10 p.m.	Pawnee and Barton	NNE	30	150	0	30	$250,000	$1,000	Sixty-six of one hundred federal housing units four miles west of Great Bend rendered unlivable. Heaviest rural property damage in southeastern Pawnee County. Eleven houses destroyed at Zook.
4. May 4	3:30 a.m.	Brown and Jackson	NNE	15	440	0	12	100,000		Intermittent path from north of Whiting to south of Hiawatha. Two houses and 13 barns destroyed with numerous buildings damaged.
5. May 8	6:30-7 p.m.	Mitchell	E	12	660	0	0	65,000		Rural property losses centered 6 miles south of Cawker City.
6. May 8	7:30 p.m.	Osborne	NE	20	440	0	2	11,000	4,000	Property and crop losses between Natoma and Covert eastward.
7. May 8	7 p.m.	Jewell	NE	7	(1)	0	1	8,000		Rural property damage southwest of Jewell.
8. May 8	9:17 p.m.	Cloud	NE	(1)	(1)	0	1	22,750		Damaged or destroyed several farm houses in the vicinities of Aurora and 11 miles south of Concordia.
9. May 8	Night	Republic	(1)	(1)	(1)	0	0	(6)		Rural property losses near Norway and Rydal.
10. May 9	12:01 a.m.	Riley	(1)	(1)	(1)	0	0	6,000		Cloud dipped to ground at Kansas State College power house in Manhattan. Two nearby residences damaged.
11. May 16	6 p.m.	Kingman	N	1/4	200	0	0	1,500		Leveled smaller buildings on farm 2 miles north of St. Leo.
12. May 18	7 p.m.	Chase	NE	15	100	0	2	60,000		Elevator destroyed at Cedar Point with rural property damage along northeasterly path.
13. May 18	7 p.m.	Jewell	NE	(1)	(1)	0	0	500		Sheet iron building destroyed one mile south of Burr Oak
14. May 18	7:34 p.m.	Russell	NE	(1)	(1)	0	0	0		Dissipated into clouds after passing over the north end of Russell without reaching the ground.
15. May 19	1:30 a.m.	Butler	(1)	(2)	(3)	0	0	1,000		Minor building damage in southern part of El Dorado.
16. May 23	6 p.m.	Phillips	NE	1/4	250	0	0	9,000		Partial destruction of rodeo grandstand at Phillipsburg.
17. May 24	2:30-4:30 p.m.	Comanche	SE	4	75	0	1	3,000	1,000	Ten funnels sited across area 4 miles north of Protection. Clear skies visible in adjacent areas.
18. May 24	5:30 p.m.	Riley	NE	15	40	0	0	15,000		Rural buildings damaged from northwest of Leonardville to 2 miles northwest of Randolph.
19. June 8	8:10-9:15 p.m.	McPherson	E	18	700	1	5	200,000	20,000	Path began in Rice County and ended 4 miles southeast of McPherson. Buildings, trees, and power lines destroyed.
20. June 16	3:30 p.m.	Wichita	NE	(1)	(1)	0	0	(5)		Only a few buildings hit in diagonal path across County from southeastern part.
21. June 25	6:45 p.m.	Sedgwick	ESE	8	3/6	0	0	(5)		Minor damage at Maize. Considerable straight, high winds.
22. June 25	9:11 p.m.	Graham	(1)	(1)	(1)	0	0	(5)		Small tornado 15 miles northeast of Hill City damaged few farm buildings and grain elevator.
23. July 1	(1)	Dickinson	E	8	3/2	0	0	(6)		Small buildings destroyed west of Donegal.
24. July 1	(1)	Riley	(1)	(1)	(1)	0	0	(6)		Several barns and a windmill blown down east of Bala.
25. July 1	4:40-6:05 p.m.	Clay	(1)	0	0	0	0	0		Funnel cloud 10 miles northeast of Wakefield disappeared without coming to the ground.
26. July 2	7-7:15 p.m.	Scott	(1)	(1)	(1)	0	0	25,000		Damage to hangars and destruction of one plane. Associated with severe hail storm.
27. July 8	10:45 p.m.	Marshall	N	1	85	0	0	5,000		Struck farm buildings 8 miles west of Marysville.
28. July 18	4:30 p.m.	Allen	(1)	(1)	(1)	0	0	(6)		Destroyed barn 10 miles southwest of Humboldt.
29. Aug. 4	Afternoon	Rawlins	E	(1)	(1)	0	0	(6)		Rural buildings damaged in northeastern part of County from 12 miles north of Atwood to north of Ludell.
30. Aug. 6	6:30-8:40 p.m.	Gove	E	10	(1)	0	0	50,000	5,000	Path extended from Grinnell east to Grainfield. Buildings and utility lines damaged, trees broken, and car and truck rolled over.
31. Aug. 6	Late afternoon	Finney	(1)	(1)	(1)	0	0	(5)		Single farm struck 6 miles east of Garden City, ripping roof off house.
32. Aug. 26	11 a.m.	Hodgeman	(1)	0	0	0	0	0		Vortex cloud sighted by pilot 25 miles northwest of Dodge City.

See reference notes at end of table.

TORNADO DATA

Table 11—Continued — YEAR 1950

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
KANSAS (Cont'd.)										
33. Aug. 28	2 p.m.	Haskell	SE	7	(1)	0	0	0		Moved from 5 miles northeast to 2 miles southeast of Sublette. It dropped to the ground once before dissipating.
KENTUCKY										
1. Nov. 20	4 a.m.	Scott	NE		880-1760	0	0	$225,000	$75,000	Hardest hit was section east of Georgetown. Numerous barns containing crops destroyed and damaged. Homes damaged. Livestock killed.
2. Nov. 20	2:20-3:20 a.m.	Muhlenberg	NE		100	0	0	100,000		Damage to high school alone estimated at $80,000.
LOUISIANA										
*1. Feb. 12	1-3 p.m.	DeSoto-Caddo-Webster-Claiborne	NNE	90	(4)	18	77	280,000		Entered Louisiana from Texas near Logansport, passed over Slack Air Base, Shreveport.
2. Feb. 12	1-2:30 p.m.	Red River-Bienville-Claiborne	NNE	60	(4)	5	10	90,000		Started a few miles east of tornado No. 1. Moved in nearly parallel path to Haynesville. Much of path over uninhabited areas.
3. Feb. 12	3 p.m.	Sabine-Natchitoches-Bienville	NE	25	(4)	5	25	50,000		Started near Zwolle, passed over Castor.
4. Feb. 12	11 p.m.	E. Carroll		(2)	(4)	0	0	5,000		Several buildings damaged.
5. Mar. 19	7:30 a.m.	Calcasieu		(2)	(4)	0	2	15,000		
6. Mar. 19	1:15 p.m.	Ascension	E	1	50	0	0	35,000		Occurred at Donaldsonville.
7. Mar. 19	1:15 p.m.	Jefferson	E	15	25	0	0	5,000		Lafitte-Jesuit Bend area.
*8. Mar. 27	6 a.m.	E. Carroll				0	2	49,000		Believed to be same tornado which later struck Humphries County, Miss.
9. Mar. 27	8:30 a.m.	E. Feliciana				0	0	5,000		
10. April 24	7:45 a.m.	Ascension	NE	(2)	100	0	0	20,000	(6)	Occurred at Donaldsonville, greatest damage to church.
11. May 1	1 a.m.	Natchitoches		2	100	0	0	50,000	25,000	At Robeline crops, timber, community and power lines, homes, and farm buildings destroyed.
12. May 1	11:25 a.m.	Natchitoches	NE	3	100	0	7	75,000	10,000	School demolished injuring seven students; other buildings, crops, and timber destroyed at Cloutierville.
13. May 1	10:30 a.m.	Winn	ENE	11	150	0	0	50,000	15,000	Developed about 2 miles north of Winnfield; dissipated in swamp near Chester. Destroyed buildings and crops.
14. May 1	11:30 a.m.	Concordia				0	2	44,000	5,000	
15. May 1	11:30 a.m.	LaSalle	NE			0	0	8,000	5,000	
16. May 2	2 a.m.	Grant and Winn	NE	25	150	0	1	70,000	10,000	Developed in Grant Parish, into Winn Parish; moved through Wheeling and Atlanta and south of Winnfield to just west of Hickory Valley.
17. May 2	3 a.m.	Catahoula	NE	(2)	100	1	5	153,000	(6)	Sixteen homes destroyed, 55 damaged; 14 other buildings destroyed, and 18 damaged.
18. May 13	11:30 a.m.	Avoyelles		(2)		0	0	35,000	(6)	
19. May 29	11 p.m.	DeSoto	NE			0	13	15,000	5,000	
20. May 29	11 p.m.	Sabine				0	0	17,000	8,000	
MARYLAND										
1. Aug. 11	6 p.m.	Kent	SE	6	1,760	0	0	3,000	1,000	Cloud appeared quite suddenly. It was very black with an orange tinge through the center; lasted less than 25 minutes.
MICHIGAN										
(None reported)										
MINNESOTA										
1. June 15	4:42 p.m.	Wilkin	SE	4	67	0	2	5,000		A farm home and barn demolished. A number of trees uprooted. A funnel-shaped cloud observed about 4 miles southeast of Barnesville.
MISSISSIPPI										
1. Feb. 12		Whitman		(2)	(4)	3	2	25,000		
2. Feb. 12		Union		(2)	(4)	0	0	20,000		
3. Mar. 1	Early a.m.	Lauderdale	NE			0	0	15,000		At Collinsville five homes damaged; one barn destroyed.
4. Mar. 27	7:45-9:30 a.m.	Hinds, Leake, and Neshoba	NE	85	50	0	7	218,000		Developed ahead of cold front. Hail widespread over area.

See reference notes at end of table.

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
MISSISSIPPI (Cont'd.)										
5. Mar. 27	7:45-9 a.m.	Hinds, Scott, and Newton	NE	75	50	0	6	$230,000		Developed ahead of cold front. Hail widespread over area.
*6. Mar. 27	Early a.m.	Humphries	NE	15	(4)	1	1	30,000		do
7. Mar. 27	9 a.m.	Attala	NE	10	(4)	0	0	14,000		do
8. Mar. 27	Late a.m.	Tishomingo	NE	(2)	(4)	0	2	46,000		do
9. Mar. 27	Late a.m.	Clay	NE	(2)	(4)	0	0	10,000		do
10. April 29	Noon	Marion	NE	10	100	0	0	105,000	(5)	Six buildings destroyed; 225 damaged in Columbia and vicinity.
11. May 1	Early a.m.	Jefferson	NE	(2)	(4)	0	0	30,000	$5,000	
12. May 1	Early a.m.	Adams	NE	(2)	(4)	0	0	10,000		Occurred near Natchez.
13. June 3	1:15 a.m.	Attala	NE	50	(4)	2	1	28,000	5,000	One home and six other buildings destroyed; five damaged northwest of Kociusko.
14. Nov. 20	7-8 a.m.	Newton and Winston	NE	100	38	0	3	25,000		One home and three outbuildings destroyed; several homes and outbuildings damaged near Noxpater.
MISSOURI										
*1. Jan. 3	11 a.m.	St. Louis	NE	(1)	125-150	0	0	500,000		At least 15 homes destroyed and 30 others severely damaged. Damage to houses, garages, automobiles, power and communication lines, and household goods. Storm moved into Illinois.
2. Jan. 12	(1)	Wayne	(1)	(1)	(1)	0	0	(5)		Slight damage to rural buildings.
3. Jan. 25	7:30 p.m.	Iron	(1)	(1)	300	0	(1)	20,000		A few people injured; none required hospitalization. Several farm houses and buildings damaged and a few destroyed. Some damage to automobiles and power and communication lines.
4. Mar. 26	9 p.m.	Carter	NE	1	200	0	2	30,000		Most damage was to buildings in Ellsinore.
5. April 3	7 p.m.	Wright	(1)	1	440	0	0	500		Unconfirmed tornado; slight damage to 4 homes.
6. June 9	1 p.m.	Pulaski	(1)	3	220	0	0	(1)	(1)	Small tornado. Considerable damage to trees, roofs, and windows.
7. June 14	Early morning	Shelby	(1)	(1)	100	0	0	(6)		Small tornado. One farm house damaged, and some outbuildings wrecked.
8. July 19	(1)	Morgan	(1)	(1)	(1)	0	0	(5)		Small twister 5 miles east of Versailles. Roofs of 2 barns blown off.
9. Aug. 13	1 a.m.	Greene	(1)	2	(1)	0	0	500		Electric and telephone wires blown down; numerous outhouses unroofed.
MONTANA										
(None reported)										
NEBRASKA										
1. May 8	10 p.m.	Nemaha	NE	1	300-1000	0	0	40,000		Damaged buildings and uprooted trees.
2. May 18	4 p.m.	Redwillow	E	(2)	(1)	0	0	1,500		Limited to Mc Cook business section.
3. June 13	6 p.m.	Knox	(1)	4	220	0	1	28,000	3,000	Livestock loss estimated at $1,500 included in total.
4. June 13	(1)	Dawes	(1)	(1)	(1)	0	0	(5)		
5. June 22	9 p.m.	Logan	(1)	(1)	(1)	0	0	(5)		Broke down some telephone poles and upset small outbuildings.
6. July 15	6:30 p.m.	Burt and Cuming	E	10	400	0	3	600,000	(5)	Many homes and farm buildings destroyed; hogs lost.
7. Sept. 21	5:50 p.m.	Lancaster	E	18	35	0	0	2,000	2,000	Struck lightly in widely separated spots in southern Lancaster County.
NEVADA										
(None reported)										
NEW JERSEY										
(None reported)										
NEW MEXICO										
1. July 11	4 p.m.	Quay	NE	12	440	0	0	350		Damage to farm buildings; path mostly over open fields.
NEW YORK										
(None reported)										
NORTH CAROLINA										
1. May 12	3 p.m.	Pitt	SE	2	(1)	0	0	6,000	5,000	Accompanied by hail. No separate estimate of damage available.

See reference notes at end of table.

TORNADO DATA

Table 11—Continued — YEAR 1950

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
NORTH CAROLINA (Cont'd.)										
2. May 12	6 p.m.	Wake	S	2	200-400	0	0	(6)	(6)	Considerable damage to crops and small buildings.
3. May 14	6 p.m.	Montgomery	(1)	3	50	0	0	$2,500	C	Damage to buildings and peach trees.
4. May 14	6:30 p.m.	Union	(1)	(1)	(1)	0	6	(6)	(6)	A small storm; one home damaged.
5. May 31	4:30 p.m.	Pitt	(1)	(2)	(1)	0	0	4,000		Three homes damaged.
6. July 26	5:20 p.m.	Cabarrus	(1)	(2)	(1)	0	0	3,000		Struck in city of Concord.
7. July 26	4:30 p.m.	Pitt	(1)	(1)	(1)	0	0	(6)	(6)	Small area of damage.
8. Oct. 9	4 a.m.	Columbus	(1)	2	888	0	5	100,000	(5)	Three homes destroyed.
NORTH DAKOTA										
1. June 13	10 a.m.	Cass	SE	2		0	0	65,000	C	Major damage at Alice, N. Dak.
2. July 14	Evening	Divide	SE	60		0	0	15,000	$10,000	Damage at Fortuna and south of Crosby.
OHIO										
1. Jan. 3	5 p.m.	Van Wert				0	0	20,000		Funnel-shaped cloud observed. Trees uprooted, a number of small buildings leveled, roofs of large buildings blown off.
2. July 19	Afternoon	Van Wert				0	0	(7)	(7)	Principal damage to Bethel Methodist Church which was completely demolished.
3. July 19	Afternoon	Allen				0	30	2,000,000	(7)	In Lima, 30 houses were completely destroyed and about 270 others sustained material damage.
OKLAHOMA										
1. Feb. 27	8:20 p.m.	Oklahoma	NNE	2	50	0	0	6,200		Near Lake Hefner, northwest of Oklahoma City.
2. Mar. 27	3 a.m.	Pittsburg	SE	(2)	75	0	0	1,000		Broomhandle factory south of McAlester damaged.
3. April 2	6-6:20 p.m.	Lincoln	SE	(1)	100	0	0	7,000		Occurred at Carney. Funnel dipped to ground 3 times.
4. April 3	4:15 p.m.	Tulsa	(1)	1	33	0	0	2,000		Harvey Young Airport.
5. April 28	2:17-2:51 p.m.	Kiowa and Washita	NE turning NNE to N	20	150-600	1	1	100,000		As many as 3 funnels at one time. Path from 15 miles southwest of Hobart Airport, at Lake Lugert, to near Lone Wolf, to near Sentinel. Forward movement 30-35 m.p.h.
6. April 28	7:05 p.m.	Hughes	NE	4	200	5	32	500,000		Path through Holdenville.
7. April 28	7:30 p.m.	Coal	(1)	3/4	100	0	0	10,000		Cottonwood community 1 1/2 miles northeast of Coalgate.
8. May 4	9:30-9:45 p.m.	Beckham	NE	5	880	0	0	8,300		From a point 3 miles northwest to 6 miles north of Carter.
9. May 4	9:30 p.m.	Custer	(1)	(2)	(4)	0	0	5,000		Northwest of Stafford.
10. May 4	9:45 p.m.	Woodward	NE	1	100	0	0	78,000		Through Ft. Supply.
11. May 7	6:30-7:30 p.m.	Ellis	SE then veered to ENE	(1)	(4)	0	0	0		Moved over open country near Shattuck, Gage, and Fargo.
12. May 7	11 p.m.	Kingfisher	(1)	4	(4)	0	3	25,000		East of Hennessey.
13. May 7-8	11 p.m.-2 a.m.	Payne	(1)	6	(4)	0	0	3,000		
14. May 9	8:20-8:40 p.m.	Pontotoc	SE	3/4	200	0	0	3,050		Seven miles west of Ada.
15. May 11	6:30 p.m.	Beaver	NE	1/2	75	0	0	500		Struck business section of city of Beaver.
16. May 16	7:30 p.m.	Dewey	S	7	100	0	1	3,490	100	Southern Dewey County in Aledo community.
17. May 22	12:39 p.m.	Custer	(1)	1 1/2	100	0	0	(5)		Funnel observed near Butler.
18. May 24	9:30 p.m.	Woodward	(1)	(1)	(4)	0	2	20,000		Struck Quinlan community.
19. May 29	2:48 p.m.	Mayes	NE	1	33	0	0	100		Three miles south of Adair.
20. June 9	6:25 p.m.	Kay	(1)	(2)	less than 100	0	0	4,000		East of Blackwell.
21. Sept. 15	5:45-6 p.m.	Hughes	NE	5	440-880	0	6	79,000	1,000	Sasakwa area.
22. Sept. 16	1:30-2:15 a.m.	Pittsburg	(1)	(2)	(4)	0	0	900		Savanna and vicinity.
23. Oct. 1	9 p.m.	Cimarron	NE	15	(4)	0	0	10,000	10,000	Boise City area.
OREGON										
(None reported)										
PENNSYLVANIA										
1. July 5	Near Sunset	Dauphin	E		12	0	0	(6)	C	Three barns, three chicken houses unroofed and damaged by "black hollow-shaped twister". Trees uprooted, crops damaged near Gratz.
2. July 5	6-8:30 p.m.	Berks and Lehigh	ENE			0	2	15,000	C	Intermittent damage from New Smithville to near Fullerton. Several black funnels; 36x52-foot barn lifted 30 feet, smashed on car. Several buildings unroofed. Wind-carried debris disrupted power and phone lines. Much minor damage in area. Corn plucked from fields.

See reference notes at end of table.

TORNADO DATA

Table 11—Continued

YEAR 1950

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
PENNSYLVANIA (Cont'd.)										
3. July 24	3:40-3:55 p.m.	Crawford	Tornado split-1 part to N, 1 part to E					(1)		Black funnel struck Titusville from west, then split, with one part going north and other going east. Major damage over 3-block area to trees and roof of one building.
4. Aug. 29	3 p.m.	Bucks	E	1		0	0	(1)	C	Richboro area struck; ripped portions of roofs, twisted a silo and rafters on home under construction, and damaged trees.
5. Nov. 4	5:45-6:30 p.m.	Lancaster and Berks	ENE	8	100	0	1	300,000	C	Tornado hit-skipped from Neighborville-Reamstown area to Adamstown and Tuckerton. Major damage around Adamstown; 1 woman carried 30 feet through air with portions of building; 14 buildings damaged or demolished. Two warehouses shifted and nearly collapsed. Trees, crops, power and telephone lines damaged.
SOUTH CAROLINA										
1. April 27	2:30-3:30 p.m.	Berkeley	W		300	0	0	25,000		Seventeen structures destroyed or damaged.
SOUTH DAKOTA										
(None reported)										
TENNESSEE										
1. Feb 13	1 a.m.	Lauderdale	(1)	(1)	(1)	0	8	2,000		Damage to several farmhouses.
2. Feb. 13	2 a.m.	Lauderdale	(1)	(1)	(1)	9	1	5,000		Two dwellings completely destroyed. Other damages slight.
3. Mar. 27	P.m.	Warren	NE	(1)	(1)	0	0	2,000		Small tornado occurred 5 miles west of McMinnville. Damaged buildings, trees, and power and telephone lines. One barn torn down even with loft floor.
TEXAS										
1. Jan. 26	6 p.m.	Hidalgo	(1)	(1)	50	0	2	(1)		Ranch house destroyed.
2. Feb. 11	1:10 p.m.	Brazoria	(1)	(1)	400	0	0	50,000		Damage to buildings.
3. Feb. 11	1:50 p.m.	Harris	(1)	(1)	1,760	1	[illegible]	20,000		
4. Feb. 11	9 p.m.	Smith	N	3/4	100	0	5	100,000		Occurred at Chappell Hill. Damage to autos and buildings.
5. Feb. 11	11:55 p.m.	Cass	NE	15	80	0	6	100,000		Damage to buildings.
6. Feb. 12	12:30 a.m.	Coryell	N	(1)	880	1	8	40,000		Homes destroyed.
7. Feb. 12	1:15 a.m.	Erath	NE	1 1/2	300	0	0	20,000		Buildings damaged.
8. Feb. 12	6:10 a.m.	Limestone	NW	1/2	100	0	0	25,000		Buildings damaged.
*9. Feb. 12	11:57 a.m.	Shelby	NE	20	300	0	32	205,000		Crossed into Louisiana.
10. Feb. 12	Noon	Shelby	NE		50	3	15	51,500		Buildings damaged.
11. Feb. 12	3:30 p.m.	Jefferson	NE	(1)	50	0	1	8,100		Buildings damaged.
12. Feb. 13	12:30 a.m.	Cass	NE	2	100	0	0	2,000		Farm buildings damaged.
13. April 28	6 p.m.	Callahan	NE	5	300	5	1	58,800		Buildings damaged.
14. April 29	3:30 p.m.	Comanche	S	20	220	0	0	60,000	2.400	Path through farm area.
15. May 4	8:30 p.m.	Ochiltree	NE	3	50	1	12	80,000		Thirty-five homes destroyed.
16. May 14	4 p.m.	Fort Bend	N	(1)	100	0	0	1,000		Buildings damaged.
17. May 15	12:01 a.m.	Kendall	SE	(1)	(1)	0	0	9,000	41,000	
18. May 25	4:30 p.m.	Dawson	SE	(1)	880	0	0	5,000		Utility lines damaged.
19. May 29	5 p.m.	Denton	E	(1)	300	0	0	(1)	(1)	
20. June 5	3:55 p.m.	Washington	SE	(1)	(1)	0	6	140,000	140,000	Through farm area.
21. June 5	4 p.m.	Austin	SE	(1)	(1)	0	8	497,500	497,500	
UTAH										
(None reported)										
VIRGINIA										
(None reported)										
WASHINGTON										
(None reported)										
WEST VIRGINIA										
1. Aug. 9	5:55 p.m.	Wood	NE			0	0	0		Tornado cloud observed by CAA personnel at Wood County Airport.
WISCONSIN										
1. June 25	7:20 p.m.	Rusk	ENE	(2)	(4)	0	0	50,000		Occurred at Ladysmith. Buildings damaged.
2. June 25	8:20 p.m.	Price	ENE	1	(4)	0	0	54,000		Occurred near Prentice. Ten barns demolished.
3. June 25	9 p.m.	Oneida	NE	12	500	2	50	500,000		Occurred southwest of Rhinelander. Many trees blown down. Fifteen homes destroyed; twenty-five damaged.

See reference notes at end of table.

TORNADO DATA

Table 11—Continued

YEAR 1950

State and date	Hour	County	Direction of advance	Length of path, miles	Width of path, yards	Number of persons		Estimated damage		Remarks
						Killed	Injured	Property (exclusive of crops)	Crops	
WISCONSIN (Cont'd.)										
4. June 25	Night	Clark	NE	(2)	(4)	1	0	$25,000		Occurred near Unity. Three barns demolished.
5. June 25	11:30 p.m.	Green Lake	E	1	300	0	0	100,000		Occurred at Berlin. Several buildings damaged or destroyed.
WYOMING										
1. May 10	(1)	Uinta	(1)	(1)	(1)	0	0	(5)	(5)	Occurred at Robertson.
2. June 7	2:30 p.m.	Niobrara	(1)	(1)	(1)	0	1	(5)	(5)	
3. June 14	Afternoon	Weston	E	5	3/1	0	0	(5)	(1)	Several thousand dollars damage to growing crops.
4. June 18	2:30 p.m.	Laramie				0	0	0		Funnel sighted, but failed to reach ground.

* Denotes a State-boundary crossing.
C Damage to crops.
(1) Datum unobtained.
(2) Short.
(3) Miles instead of yards.
(4) Narrow.
(5) Slight.
(6) No estimate of damage obtained.
(7) Losses reported as considerable.

Table 12

TORNADO SUMMARY

YEAR 1950

State	January	February	March	April	May	June	July	August	September	October	November	December	Total
ALABAMA													
Number				2									2
Days				1									1
Deaths													
Injuries				15									15
Damage				$485,000									$485,000
ARIZONA													
Number							3						3
Days							2						2
Deaths													
Injuries													
Damage							0						0
ARKANSAS													
Number	1	2	5	2				1				1	12
Days	1	1	1	1				1				1	6
Deaths	1			1									2
Injuries	1		28	4				4					40
Damage	$1,000	$20,450	[3] $838,450	14,550				$18,500				(4)	[3] 892,950
CALIFORNIA													
(None)													
COLORADO													
Number								1					1
Days								1					1
Deaths													
Injuries													
Damage								150,000					150,000
CONNECTICUT													
Number							2						2
Days							2						2
Deaths													
Injuries													
Damage							$104,000						104,000
DELAWARE													
(None)													
DISTRICT OF COLUMBIA													
(None)													
FLORIDA													
Number			1		3			3					7
Days			1		2			3					6
Deaths													
Injuries													
Damage			2,000		$26,000			41,000					69,000
GEORGIA													
Number					1	3							4
Days					1	2							3
Deaths													
Injuries						1							1
Damage					1,000	$11,750							12,750
IDAHO													
(None)													
ILLINOIS													
Number	3		1			2	1					3	10
Days	2		1			2	1					1	7
Deaths												3	3
Injuries	3											28	31
Damage	225,000		1,000			[3] 20,000	6,000					[3] 607,100	[3] 859,100
INDIANA													
Number							3						3
Days							2						2
Deaths													
Injuries													
Damage							130,000						130,000
IOWA													
Number					2	2	1						5
Days					2	1	1						4
Deaths													
Injuries						5							5
Damage					[3] 28,000	31,000	(2)						[3] 59,000
KANSAS													
Number				1	17	4	6	5					33
Days				1	8	3	4	4					20
Deaths						1							1
Injuries					49	5							54
Damage				30,000	[3] 558,750	[3] 220,000	[3] 30,000	[3] 55,000					[3] 893,750
KENTUCKY													
Number											2		2
Days											1		1
Deaths													
Injuries													
Damage											$400,000		400,000
LOUISIANA													
Number		4	5	1	10								20
Days		1	2	1	4								8
Deaths		28			1								29
Injuries		112	4		28								144
Damage		425,000	[3] 109,000	20,000	600,000							[3]	[3] 1,154,000
MAINE													
(None)													
Maryland													
Number								1					1
Days								1					1
Deaths													
Injuries													
Damage								4,000					4,000
MASSACHUSETTS													
(None)													
MICHIGAN													
(None)													

See reference notes at end of table.

TORNADO SUMMARY

Table 12—Continued — YEAR 1950

State	January	February	March	April	May	June	July	August	September	October	November	December	Total
MINNESOTA													
Number						1							1
Days						1							1
Deaths													
Injuries						2							2
Damage						$5,000							$5,000
MISSISSIPPI													
Number		2	7	1	2	1					1		14
Days		1	2	1	1	1					1		7
Deaths		3	1			2							6
Injuries		2	16			1					3		22
Damage		$45,000	$563,000	[3] $105,000	$45,000	33,000					$25,000		[3] $816,000
MISSOURI													
Number	3		1	1		2	1	1					9
Days	3		1	1		2	1	1					9
Deaths													
Injuries	(1)		2										[3] 2
Damage	[3] $520,000		30,000	500		(2)	(4)	$500					[3] 551,000
MONTANA													
(None)													
NEBRASKA													
Number					2	3	1		1				7
Days					2	2	1		1				6
Deaths													
Injuries						1	3						4
Damage					41,500	[3] 31,000	[3] $600,000		$4,000				[3] 676,500
NEVADA													
(None)													
NEW HAMPSHIRE													
(None)													
NEW JERSEY													
(None)													
NEW MEXICO													
Number							1						1
Days							1						1
Deaths													
Injuries													
Damage							350						350
NEW YORK													
(None)													
NORTH CAROLINA													
Number					5		2			1			8
Days					3		1			1			5
Deaths													
Injuries					6					5			11
Damage					[3] 17,500		[3] 3,000			[3] $100,000			[3] 120,500
NORTH DAKOTA													
Number						1	1						2
Days						1	1						2
Deaths													
Injuries													
Damage						[3] 65,000	25,000						[3] 90,000
OHIO													
Number	1						2						3
Days	1						1						2
Deaths													
Injuries							30						30
Damage	20,000						[3] 2,000,000						[3] 2,020,000
OKLAHOMA													
Number		1	1	5	12	1			2	1			23
Days		1	1	3	9	1			2	1			18
Deaths				6									6
Injuries				33	6				6				45
Damage		6,200	1,000	619,000	[3] 146,540	4,000			80,900	20,000			[3] 877,640
OREGON													
(None)													
PENNSYLVANIA													
Number							3	1			1		5
Days							2	1			1		4
Deaths													
Injuries							2				1		3
Damage							[3] 15,000	(2)			[3] 300,000		[3] 315,000
RHODE ISLAND													
(None)													
SOUTH CAROLINA													
Number				1									1
Days				1									1
Deaths													
Injuries													
Damage				25,000									25,000
SOUTH DAKOTA													
(None)													
TENNESSEE													
Number		2	1										3
Days		1	1										2
Deaths		9											9
Injuries		9											9
Damage		7,000	2,000										9,000
TEXAS													
Number	1	11		2	5	2							21
Days	1	3		2	5	1							12
Deaths		5		5	1								11
Injuries	2	73		1	12	14							102
Damage	(2)	621,600		121,200	[3] 136,000	1,275,000							[3] 2,153,800
UTAH													
(None)													
VIRGINIA													
(None													

See reference notes at end of table.

Table 12—Continued

TORNADO SUMMARY

YEAR 1950

State	January	February	March	April	May	June	July	August	September	October	November	December	Total
VERMONT													
(None)													
WASHINGTON													
(None)													
WEST VIRGINIA													
Number								1					1
Days								1					1
Deaths													
Injuries													
Damage								0					0
WISCONSIN													
Number						5							5
Days						1							1
Deaths						3							3
Injuries						50							50
Damage						$729,000							$729,000
WYOMING													
Number					1	3							4
Days					1	3							4
Deaths													
Injuries						1							1
Damage					(4)	(4)							(4)
TOTALS													
Number	9	22	22	16	60	30	27	14	3	2	4	4	213
	*8	*20	*21										*209
Days	8	8	10	12	38	21	20	13	3	2	3	2	140
	†5	†4	†5	†7	†22	†13	†15	†12	†3	†2	†1	†1	†90
Deaths	1	45	1	12	2	6	0	0	0	0	0	3	70
Injuries	36	196	50	53	101	80	35	7	6	5	4	28	571
Damage	$766,000	$1,125,250	$1,546,450	$1,420,250	$1,600,290	$2,424,750	$2,913,350	$269,000	$84,900	$120,000	$725,000	$607,100	$13,602,340

* Corrected for boundary crossing tornadoes.
† Tornado days for the country as a whole.
(1) Few
(2) Datum unobtained.
(3) Additional
(4) Slight

NUMBER OF TORNADOES, TORNADO DAYS, AND RESULTING LOSSES BY YEARS, 1916-50

Table 13.

Year	Number reported	Number tornado days	Total loss of life	Most deaths in a single tornado	Total reported property losses	Number of tornadoes causing losses of	
						$100,000	$1,000,000
1916--	90	36	150	30	$2,264,500	6	1
1917--	121	38	509	101	15,007,700	22	5
1918--	81	45	135	36	7,431,150	19	1
1919--	65	36	206	59	6,861,500	9	2
1920--	87	50	498	87	15,007,500	24	7
1921--	106	56	202	61	5,456,300	13	1
1922--	108	61	135	16	6,880,000	20	0
1923--	102	59	109	23	2,968,725	8	0
1924--	130	58	376	85	26,072,350	25	6
1925--	119	64	794	689	24,039,900	29	1
1926--	111	56	144	23	4,323,950	16	0
1927--	164	61	540	92	43,455,650	28	7
1928--	203	76	92	14	13,235,600	25	4
1929--	197	75	274	40	10,112,400	30	1
1930--	192	72	179	41	12,289,100	28	3
1931--	94	57	36	6	3,215,900	7	1
1932--	152	67	394	37	8,888,525	11	1
1933--	260	96	362	34	16,190,640	31	5
1934--	147	77	47	6	4,424,950	9	0
1935--	182	77	70	11	4,661,430	15	0
1936--	159	74	552	216	26,228,550	17	6
1937--	148	76	29	5	3,155,875	11	0
1938--	220	78	183	32	8,793,457	18	3
1939--	155	74	87	27	5,891,930	10	2
1940--	128	65	65	18	6,015,320	9	1
1941--	118	57	53	25	4,492,650	15	0
1942--	170	68	384	65	15,268,950	32	3
1943--	155	62	58	5	12,198,400	25	4
1944--	173	67	275	100	21,594,150	34	7
1945--	126	68	210	69	22,069,800	25	8
1946--	109	65	78	15	12,267,015	31	3
1947--	171	80	313	169	23,994,680	42	5
1948--	190	73	140	33	40,699,650	53	6
1949--	262	84	212	58	27,367,380	45	7
1950--	209	90	70	18	13,602,340	31	1
Sum---	5,204	2,298	7,961	---	$476,427,917	773	102
Mean--	148.6	65.6	227.5	---	13,612,226	---	---

Table 14

HAILSTORM LOSSES

YEAR 1950

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
Alabama			$89,500	$6,500	$10,000		(1)	(1)	$43,000	$530,000				
Arizona												$6,000		$10,000
Arkansas			(2)	(1)	63,000	(2)								
California														
Colorado											$725,000	275,500	$631,400	428,700
Florida					2,000,000		$3,000	$50,000	(4)	3/ 100,000		500		
Georgia							7,000	45,000	500	617,500				
Idaho												100,000		130,000
Illinois					3,750				5,000	20,000				20,000
Indiana					5,000		43,000		33,000	90,000	20,000	10,000		
Iowa							(1)	(1)			(1)	(2)	(1)	3/ 350,000
Kansas									3/ 51,000	616,000	111,000	387,000	3,755,000	2,677,000
Kentucky									40,000	10,000				
Louisiana			(1)		3/ 7,000	$1,300,000	1,000	(1)	35,000	85,000				
Maryland-Delaware										(6)				
Michigan									(1)	50	(6)	20,000	(1)	(6) 40,500
Minnesota					10,000						4,000	3/ 46,000		15,000
Mississippi					(6)	(6)	25,000	760,000						
Missouri							(2)		(1)	(1)	3/ 100,000	3/ 110,000	3/ 11,000	3/ 25,000
Montana											3/ 102,000	5/ 3/ 535,000	3/ 17,500	3/ 2,910,000
Nebraska										30,000	3/ 72,250	3/ 1,322,000	3/ 25,000	3/ 1,472,000
Nevada														
New England											1,000			
New Jersey													1,000	1,000
New Mexico									50,000	25,000	1,600			(1)
New York														
North Carolina							1,400	19,800	62,250	611,732	168,550	2,844,570	8,950	398,885
North Dakota											10,000	70,000	40,000	450,000
Ohio	(2)				(2)				(1)	(1)		(2)		
Oklahoma							1,005,075	68,000	102,350	93,600	3/ 467,000	3/ 650,000	5/ 300,000	10,000
Oregon														
Pennsylvania									(5) (6)	(5) (6)	(6)	(4)		5,000
South Carolina										39,000				4,000
South Dakota											50,000	50,000	10,000	28,000
Tennessee										1,000				
Texas							100,000	16,100	915,000	641,900	472,500	877,150		1,503,500
Utah														
Virginia									5/ 209,320	5/ 219,500		10,900		50,000
Washington														
West Virginia									(6)	(6)		(5) (6)		(1)
Wisconsin					(1)							2,000	(1)	160,300
Wyoming											215,000	105,000	17,500	142,000
Alaska														
Hawaii											(6)	(6)		
West Indies														
Total	(2)		3/ $89,500	3/ $6,500	3/ $2,098,750	3/ $1,300,000	3/ $1,185,475	3/ $958,900	3/ 5/ $1,546,420	3/ 5/ $3,730,282	3/ $2,519,900	3/ 5/ $7,421,620	3/ 5/ $4,817,350	3/ $10,830,885

HAILSTORM LOSSES

Table 14—Continued

YEAR 1950

Section	August		September		October		November		December		Crop season April–Sept.		Total		
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property and crops
Alabama											3/ $43,000	3/ $530,000	3/ $142,500	3/ $536,500	3/ $679,000
Arizona		$68,700*	$680,000	*							*680,000	*84,700	*680,000	*84,700	764,700
Arkansas	(1)	(1)	(2)	$2,000							(2)	3/ 2,000	3/ 63,000	3/ 2,000	3/ 65,000
California															
Colorado	$25,000	48,500	150,000	200,000							1,531,400	952,700	1,531,400	952,700	2,484,100
Florida		(1)									3/ 3,000	3/ 150,500	3/ 2,003,000	3/ 150,500	3/ 2,153,500
Georgia											7,500	662,500	7,500	662,500	670,000
Idaho		5/ 45,000										5/ 275,000		5/ 275,000	5/ 275,000
Illinois			5,000	50,000					$130,000	(1)	10,000	90,000	143,750	3/ 90,000	3/ 233,750
Indiana			460,000	60,000							556,000	160,000	561,000	160,000	721,000
Iowa	(1)	325,000									(1)	3/ 675,000	(1)	3/ 675,000	3/ 675,000
Kansas	54,000	146,000	(6)	3/ 81,500							3/ 3,971,000	3/ 3,907,500	3/ 3,971,000	3/ 3,907,500	3/ 7,878,500
Kentucky			1,000	10,000							41,000	20,000	41,000	20,000	61,000
Louisiana											36,000	3/ 85,000	3/ 43,000	3/ 1,385,000	3/ 1,428,000
Maryland-Del.												(6)		(6)	(6)
Michigan	(6)	64,500	(1)	165							3/ (6)	3/ 125,215	3/ (6)	125,215	3/ 125,215
Minnesota	1,100	32,000	(1)								3/ 5,100	3/ 93,000	3/ 15,100	3/ 93,000	3/ 108,100
Mississippi									7/		25,000	760,000	3/ 25,000	3/ 760,000	3/ 785,000
Missouri			2,000,000	(1)					4,000,000		3/ 2,111,000	3/ 135,000	3/ 6,111,000	3/ 135,000	3/ 6,246,000
Montana	3/ 5/ 5,100	3/ 467,000									3/ 5/ 124,600	3/ 3,912,000	3/ 5/ 124,600	3/ 3,912,000	3/ 4,036,600
Nebraska	3/ 246,000	3/ 725,000									3/ 343,250	3/ 3,549,000	3/ 343,250	3/ 3,549,000	3/ 3,892,250
Nevada															
New England											1,000		1,000		1,000
New Jersey	1,000	1,000									2,000	2,000	2,000	2,000	4,000
New Mexico	(1)	16,000									3/ 51,600	3/ 41,000	3/ 51,600	3/ 41,000	3/ 92,600
New York					(1)								(1)		(1)
North Carolina	13,500	631,950									254,650	4,506,937	254,650	4,506,937	4,761,587
North Dakota	40,000	600,000		120,000		$6,000					90,000	1,240,000	90,000	1,246,000	1,336,000
Ohio											(1)	(2)	(2)	(2)	(2)
Oklahoma			987,750	6,000		5,000					3/ 5/ 2,862,175	3/ 827,600	3/ 5/ 2,862,175	3/ 832,600	3/ 3,694,775
Oregon	2,500	11,000									2,500	11,000	2,500	11,000	13,500
Pennsylvania											(5)(6)	3/ 5,000	(5) (6)	3/ 5,000	3/ 5,000
South Carolina												43,000		43,000	43,000
South Dakota	5,000										65,000	78,000	65,000	78,000	143,000
Tennessee												1,000		1,000	1,000
Texas	8,500	75,000		12,500							1,496,000	3,126,150	1,496,000	3,126,150	4,622,150
Utah															
Virginia											5/ 209,320	5/ 280,400	5/ 209,320	5/ 280,400	5/ 489,720
Washington				(1)								(1)		(1)	(1)
West Virginia											(6)	3/ (5) (6)	(6)	(5) (6)	(5)
Wisconsin		24,000		(1)							(1)	3/ 186,300	(1)	3/ 186,300	3/ 186,300
Wyoming		12,500	(1)	(1)							3/ 232,500	3/ 259,500	3/ 232,500	3/ 259,500	3/ 492,000
Alaska											(6)	(6)	(6)	(6)	(6)
Hawaii															
West Indies															
Total	3/ 5/ $401,700	3/ 5/ $3,293,150	3/ $4,283,750	3/ $542,165	(1)	$11,000			7/ $4,130,000	(1)	3/ 5/ $14,754,595	3/ 5/ $28,777,002	3/ 5/ $21,072,845	3/ 5/ $28,094,502	3/ 5/ $49,167,347

* Property and crop.

1. Slight.
2. Considerable losses occurred, no accurate estimate of damage available.
3. Additional losses.
4. Several thousand dollars.
5. Considerable damage from attendant heavy rains.
6. Losses occurred; no estimate.
7. Estimated from reports from insurance companies.

HAILSTORM LOSSES FOR PAST YEARS

Table 15

Year	Property (exclusive of crops)	Crops	Total
1933			$6,773,810
1934			11,390,405
1935			9,471,401
1936	$1,953,870	$9,053,168	11,007,038
1937	1,797,355	10,991,938	12,789,293
1938	2,634,700	12,170,180	14,804,880
1939	358,850	3,153,670	3,512,520
1940	2,245,925	7,162,428	9,408,353
1941	1,854,571	11,449,108	13,303,679
1942	1,513,475	16,407,588	17,921,063
1943	3,149,220	33,854,174	37,003,394
1944	$9,060,975	$49,987,901	$59,048,876
1945	3,608,170	31,513,464	35,121,634
1946	9,783,775	30,382,033	40,165,808
1947	3,829,320	54,348,839	58,178,159
1948	12,163,200	56,180,814	68,344,014
1949	6,336,400	41,646,610	47,983,010
1950	21,072,845	28,094,502	49,167,347
Total	81,362,651	396,396,417	505,394,684
Mean	5,424,177	26,426,428	28,077,482

WINDSTORM LOSSES

Table 16 (Windstorms other than tornadoes) YEAR 1950

Section	January		February		March		April		May		June		July	
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops
Alabama					$1,563,000				$7,700		$200		$5,100	
Arizona					12,500						*29,900	*	*1,300	*
Arkansas					20,000	(3)								
California	$3,500				20,000	$5,200			75,000		10,000	$21,000		
Colorado	806,000	$256,000			50,000	100,000					20,000	75,000		
Florida							$2,000				15,000			
Georgia					57,500	24,000			25,500		12,000	40,000		
Idaho							(3)							
Illinois					7,500		150,000		400,000		1,000	(4)	1,500	(4)
Indiana	26,000				14,000		65,000		30,000	$90,000	50,000	11,000	60,000	
Iowa					(4)		(3)		5,003,500					
Kansas					11,000	(3)	(4)	(3)	32,400		253,600	211,000	30,000	(3)
Kentucky			$2,000		70,000	1,000			15,000	5,000	5,000		5,000	
Louisiana			(3)		75,000									
Maryland-Delaware					(2)								(8)	
Michigan	(5)								181,000	6,000	30,000	(4)		
Minnesota									750,000		295,600	(3)	2,500	
Mississippi					35,000		55,000	(4)	27,000	5,000				
Missouri					22,600		(4)		256,000	(4)	(4)	3,000		
Montana							(3)				14,000	(4)	20,000	(3)
Nebraska					3,000,000	35,000			(5)	(5)	41,000		20,000	
Nevada					(4)							(4)		
New England	30,000		(4)		4,000		200,000		150,000	(4)	8,000	(4)	800	
New Jersey	25,000		30,000		50,000		25,000		25,000				25,000	
New Mexico	5,000								(2)	(2)				
New York	4,000,000				25,000									
North Carolina			(4)						100,000	(4)	2,000	(3)		
North Dakota					1,000,000						5,000		10,000	$20,000
Ohio	(2)				(2)				(3)	(3)		(2)		
Oklahoma					100,500		372,300		98,900		152,000	5,000		
Oregon	350,000	(4)												
Pennsylvania			(3)								(3)	(8)	(3)	(8)
South Carolina					1,300		10,000		1,000		11,000		11,000	
South Dakota					2,000,000				10,000					
Tennessee	1,000,000	(3)	6,500		15,000	2,000			3,500	300	27,000	1,500		
Texas			2,000						974,000	927,900	17,250	6,850		2,000
Utah					(5)	(3)						(3)		
Virginia			1,000		2,000				9,000	(6)	94,575	6,300	22,000	(3)
Washington	750,000		4,000											
West Virginia					(3)		(3)		(3)		(2)			
Wisconsin	(3)				42,696		(3)		1,000,000	(3)	305,000		503,500	(8)
Wyoming												5,000		
Alaska							(3)	(3)	(3)	(3)				
Hawaii	(4)	(2)												
West Indies														
Total	$6,995,500	$256,000	$45,500		$8,198,596	$167,200	$879,300	(3)	$9,174,500	$1,034,200	$1,389,125	$385,650	$717,700	$22,000

See reference notes at end of table.

WINDSTORM LOSSES

Table 16 —Continued

(Windstorms other than tornadoes)

YEAR 1950

Section	August		September		October		November		December		Crop season April—Sept.		Total		
	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property	Crops	Property and crops
Alabama	$500,610								$4,000		$513,610		$2,080,610		$2,080,610
Arizona	800	$16,000	$566,400	$11,000			$15,000				*598,400	*$27,000	*625,900	*$27,000	652,900
Arkansas	(2)	(2)									(2)	(2)	20,000	(2)	20,000
California					$300,000	$100,000	100,000	$200,000			85,000	21,000	508,500	326,200	834,700
Colorado	2,000	10,000									22,000	85,000	878,000	441,000	1,319,000
Florida	216,000	100,000	3,100,000	200,000	23,750,000	4,000,000					3,333,000	300,000	27,083,000	4,300,000	31,383,000
Georgia					200,000	50,000					37,500	40,000	295,000	114,000	409,000
Idaho	(3)	(3)			(2)	(4)					(3)	(3)	(2)	(3)	(2)
Illinois			156,500	(4)							709,000	(4)	716,500	(4)	716,500
Indiana			462,000	55,000							667,000	156,000	707,000	156,000	863,000
Iowa	(4)	50,000									5,003,500	50,000	5,003,500	50,000	5,053,500
Kansas	100,000	20,000	3,025								419,025	231,000	430,025	231,000	661,025
Kentucky							170,000	30,000			25,000	5,000	267,000	36,000	303,000
Louisiana													75,000		75,000
Maryland-Del.	8,000	(4)	(4)		10,000		1,000,000				8,000	(4)	1,018,000	(4)	1,018,000
Michigan	30,000	(3)	(4)	(4)			(3)	(3)	(4)		241,000	6,000	241,000	6,000	247,000
Minnesota			3,500								1,051,600	(3)	1,051,600	(3)	1,051,600
Mississippi											82,000	5,000	117,000	5,000	122,000
Missouri									500		256,000	3,000	279,100	3,000	282,100
Montana		(4)			(3)						24,000	(3)	24,000	(3)	24,000
Nebraska	10,000										71,000	(5)	3,071,000	35,000	3,106,000
Nevada												(4)	(4)	(4)	(4)
New England			2,000,000				15,100,000				2,358,800	(4)	17,492,800	(4)	17,492,800
New Jersey	20,000				25,000		30,000,000		50,000		95,000		30,275,000		30,275,000
New Mexico	35,000		50,000	30,000			*				85,000	30,000	990,000	30,000	120,000
New York							20,000,000	*	25,000				24,050,000	*	24,050,000
North Carolina									(2)	(4)	102,000	(3)	102,000	(3)	102,000
North Dakota							10,000	500			15,000	20,000	1,025,000	20,500	1,045,500
Ohio											(3)	(2)	(2)	(2)	(2)
Oklahoma			10,000								633,200	5,000	733,700	5,000	738,700
Oregon					350,000	400,000							700,000	400,000	1,100,000
Pennsylvania			(3)	(3)	(3)		(3)	(3)	70,000		(3)	(3) (8)	70,000	(3) (8)	70,000
South Carolina											33,000		34,300		34,300
South Dakota											10,000		2,010,000		2,010,000
Tennessee	30,000	30,000		1,000	500	200	2,000	2,000			60,500	32,800	1,084,500	37,000	1,121,500
Texas	10,000						4,000				1,001,250	936,750	1,007,250	936,750	1,944,000
Utah												(3)	(5)	(3)	(3)
Virginia	2,750								(2)		128,325	6,300	131,325	6,300	137,625
Washington	3,000	(3)			200,000	(3)	190,000	1,000			3,000	(3)	1,147,000	1,000	1,148,000
West Virginia									(3)		(2)		(2)		(2)
Wisconsin	15,000		120,000				(3)				1,943,500	(3) (8)	1,986,196	(3) (8)	1,986,196
Wyoming					250	6,000						5,000	250	11,000	11,250
Alaska							15,000	(3)	(3)	(3)			15,000	(3)	15,000
Hawaii	(2)								(4)		(2)	(3)	(2)	(2)	(2)
West Indies	1,125,000	(3)	50,000	(4)							1,175,000	(3)	1,175,000		1,175,000
Total	$2,108,160	$226,000	$6,521,425	$297,000	$24,835,750	$4,556,200	$66,605,000	$233,500	$149,500	(3)	$20,790,210	$1,964,850	$127,621,056	$7,177,750	$134,798,806

* Property and crop.

1. Additional losses.
2. Considerable losses occurred; no estimate.
3. Losses occurred; no estimate.
4. Slight.
5. Several thousand dollars.
6. Includes loss due to hail.
7. Combined with sleet damage.
8. Considerable damage from attendant heavy rains.

WINDSTORM LOSSES PAST YEARS

Table 17

(Windstorms other than tornadoes)

Year	Total loss of life	Total property loss
1916	65	$11,712,125
1917	25	1,400,550
1918	79	7,602,200
1919	344	28,170,760
1920	42	4,735,400
1921	65	13,174,650
1922	133	5,055,800
1923	68	5,261,800
1924	78	13,545,750
1925	88	11,612,380
1926	357	93,610,250
1927	64	6,783,160
1928	1,947	88,836,000
1929	46	20,334,600
1930	19	5,705,500
1931	17	7,773,000
1932	306	42,657,360
1933	156	65,604,100
1934	109	19,497,173
1935	461	17,191,000
1936	121	$17,256,265
1937	43	6,292,938
1938	630	315,435,388
1939	60	3,988,141
1940	251	25,588,925
1941	43	15,523,320
1942	68	32,691,640
1943	61	25,056,520
1944	448	207,745,900
1945	85	36,498,738
1946	70	29,515,178
1947	117	135,377,544
1948	52	59,169,862
1949	102	69,476,570
1950	210	134,798,806
Total	6,860	1,584,679,293
Mean	196	45,276,551

NORTH ATLANTIC HURRICANES AND TROPICAL DISTURBANCES

YEAR 1950

The hurricane season of 1950 was a very active one. It began August 12 and ended October 21. During this period there were 12 tropical storms, of which 11 reached hurricane intensity. Of the 12 storms detected during the year, 4 reached the U. S. coast line and passed inland, but one of these, originating in the Gulf of Mexico, had lost its hurricane intensity when it entered Florida near Cedar Keys. Four others of these storms traversed the Atlantic in a north-northeastward direction several hundred miles off the United States coast. One entered Nova Scotia after having caused strong winds at Cape Hatteras and at Cape Cod. Another passed nearly over the British West Indies and within 85 miles of Nantucket, and two which originated in the Gulf of Mexico passed inland over the Mexican coast line. In addition to the many slow movements, blockings, and changes in course, and even loops, another unusual feature of the hurricane season was the number of times two or more storms were in progress at the same time. While it is not without precedent to have more than one hurricane in the Atlantic hurricane area at the same time, there have never been so many occurences of two or three at the same time.

Damage to property and crops in the United States resulting from these storms has been estimated at $35,850,000. There was a total of 19 deaths.

The following are individual reviews of all North Atlantic hurricanes and tropical disturbances that occurred during the 1950 season. A synopsis of the important features of these storms is given in table 4; their tracks, numbered I to XII, chronologically, are shown by chart at the end of this bulletin.

I.--Hurricane of August 12-21.--The first hurricane of the season developed in a squally wave that had been under observation in the Atlantic for 2 days. It was located by reconnaissance plane near latitude 21°N., longitude 62° W., or about 275 miles northeast of San Juan on the morning of August 13. Thereafter, the storm moved slowly in a northwesterly course and by 9 a.m. of the 14th it had increased to hurricane intensity. It began to recurve to a northeasterly course about 300 miles east of Jacksonville on the morning of the 19th, passed a short distance east of Cape Hatteras on the night of the 19-20th, and entered Nova Scotia on the 21st. This hurricane caused strong winds at Cape Cod, but no reports of damage were received.

The strongest winds reported, by aircraft at sea, were about 140 m.p.h. and lowest pressure about 28.15 inches.

II.--Hurricane of August 20-31.--This storm appeared east of the Leeward Islands on August 20 and passed nearly over Antigua the night of the 21st with winds reported at 90 to 120 m.p.h. It progressed slowly northwestward, losing force, and was only a minor disturbance when it passed over Puerto Rico on the 23d, where strongest winds were 35 to 40 m.p.h.

The island of Antigua suffered major damage to warehouses, homes, and power and telephone lines. No loss of human life was reported. Other islands, north and west of Antigua, including the Virgin Islands and Puerto Rico, experienced very minor damage. Heavy rains in some sections of Puerto Rico delayed farm work and construction projects.

After passing Puerto Rico the storm was more in the nature of squalls until the evening of the 25th, when it showed signs of developing a center on the south coast of Cuba. Thereafter it moved slowly westward, curved northward in the Gulf of Mexico, and moved inland in the Mobile-Pensacola area during the night of the 30th.

Although winds as high as 115 m.p.h. were reported by reconnaissance planes and ships on August 30, the highest velocities reported from the Gulf coast did not exceed 85 m.p.h., except in the tornado near Apalachicola.

Considerable damage resulted in northwestern Florida and southern Alabama. Inundation of low areas was general from Dauphin Island (south of Mobile) to St. Marks. Crop damage was severe in southern Alabama and extreme northwestern Florida. In Birmingham one person was killed and two injured by falling "live" wires.

A tornado, reported as a waterspout that came ashore from Apalachicola Bay, demolished four dwellings and a grocery store near Apalachicola. Eleven other dwellings were damaged. Another tornado occurred in Jackson County. One home was destroyed.

A tabular listing of meteorological data associated with this hurricane is contained in table 1.

III.--Hurricane of August 27-September 4.--This hurricane was first located by ship reports on August 27, about 900 miles east-northeast of Puerto Rico and near latitude 23° N., longitude 53° W. It was small in diameter and moved in a west-northwesterly direction until the morning of the 29th when it recurved to a north-northeasterly course. Winds had attained a speed of 115 m.p.h. at this time. On the 30th the storm made a clockwise loop, followed a westerly course for 2 days, changing to a northwesterly and again to a northeasterly course on September 3. During the night of September 2-3 the hurricane began to lose force several hundred miles southeast of Nova Scotia and by the morning of the 4th was no longer of hurricane intensity.

IV.--Hurricane of August 30-September 13.--This hurricane, which had an unusually long history, was first located by ship reports on August 30 about 210 miles east of Martinique. Later reports from the ship indicated that the storm was already of hurricane intensity by early morning of the 31st. It moved on a northwesterly course and passed close to the islands of Antigua, Barbuda, and others of the northeastern Leeward group on September 1, causing heavy damage.

This was the most violent hurricane in Antigua's history. Highest wind velocity was estimated to be over 130 m.p.h., and winds of hurricane force continued for six hours. Total property damage resulting from the storm was more than $1,000,000. Two persons were drowned when their small sailing craft capsized due to high waves and strong wind. In Barbuda, winds also reached 130 m.p.h. and damage to buildings alone was estimated at $75,000. Philipsburg, Netherlands West Indies, experienced winds of 100 m.p.h. and suffered considerable damage.

After passing into the Atlantic, the hurricane continued to move in a northwesterly direction and later northward at a slow rate for several days, to a position about 200 miles southwest of Bermuda on September 7. Here it was blocked for 2 or 3 days by high pressure to the north. It finally drifted slowly westward and as the blocking high moved away, it resumed a north to northeast course off the middle and north Atlantic coast. By the morning of the 12th, the center of the storm had reached a point about 85 miles east-southeast of Nantucket.

The only strong winds along the Atlantic coast were in the Cape Cod region, where near hurricane force was experienced.

Rhode Island and eastern Massachusetts suffered property losses totaling $2,000,000. Several fishing vessels were caught in the worst sector of the storm, where winds of hurricane speed and tremendous seas overwhelmed the 105-foot scalloper "Theresa A", which was lost with its 11 crew members. At Provincetown an automobile was blown off the road and overturned, killing the driver.

Pleasure boats and other small craft suffered the largest monetary loss in New England's history, although numerically not quite as great as in the 1938 hurricane.

This was a great and very severe hurricane with winds in excess of 160 m.p.h. At one time a reconnaissance plane reported waves 100 feet high. It is fortunate that the storm did not strike the mainland with full force.

V.—Hurricane of September 1-7.—This storm formed a short distance south of the Isle of Pines on September 1 and remained nearly stationary in that vicinity for 48 hours. Strongest winds were around 75 m.p.h. during this period and until it had moved northward over the lower Florida Keys on the 3d. The movement was quite rapid beginning the night of the 2d until around noon of the 3d, with the center passing just east of Havana about 6:00 a.m. and between Key West and Dry Tortugas between 10:00 and 11:00 a.m. of the 3d. Thereafter, forward movement slowed to 10 to 12 m.p.h. as it moved north-northwestward parallel to the west Florida coast 30 to 50 miles offshore to a point about 70 miles northwest of Tampa at 8:00 p.m. of the 4th. Here it began to show increased intensity and aircraft estimated highest winds about 125 m.p.h.

During the night of the 4th-5th the storm made a sharp turn to the northeast and reached the coast a little south of Cedar Keys about 3:00 a.m. of the 5th. Here it made a small loop that brought the lull over Cedar Keys at 11:00 a.m. from the east. The center lingered over Cedar Keys until 1:30 p.m., when the southward bend of the loop carried the center away to the south. The observer at Cedar Keys reports the unique experience of getting the same side of the hurricane twice with 2 ½ hours of calm intervening.

The strongest winds were 125 m.p.h. in gusts and hurricane force or higher prevailed from about 6:00 a.m. to 6:00 p.m. on the 5th, except for the calm period. Lowest pressure was 28.30 inches (958.3 mbs.). Old residents say this was the worst hurricane in the Cedar Keys area in 70 years. Half of the homes were severly damaged or destroyed and 90 percent of the remainder were damaged to some extent. The fishing fleet, upon which the town depends for a livelihood, was completely destroyed by wind and waves. Other communities in the area such as Yankeetown, Crackertown, and Port English suffered equally, while the whole coastal area from Sarasota to Cedar Keys suffered extensively from wind and high water. Beach erosion was severe, especially in the St. Petersburg-Clearwater area. The tide in Tampa Bay rose 6.5 feet; the highest since 1921.

This hurricane caused property and crop damage in Florida estimated at $3,300,000. Two persons were electrocuted when they came in contact with fallen "live" wires, and are classed as storm casualties. There were 27 persons injured but none seriously.

A tabular listing of lowest pressure, maximum wind, total rainfall, and miscellaneous meteorological data for selected stations in Florida is contained in table 2. Stations are arranged in a time sequence corresponding, as nearly as possible, to the order in which they were affected by this hurricane.

A summary of casualties and estimated damage follows:

CASUALTY AND DAMAGE SUMMARY FOR FLORIDA

Killed	2
Injured	27
Homes destroyed	57
Homes damaged	1,001
Families suffering loss	3,664
Families requesting Red Cross aid	561
Families sheltered and fed during storm	2,824

DAMAGE ESTIMATES

Property damage	$ 2,500,000
Crops	200,000
Power and communications	200,000
Highways, bridges and city streets	250,000
Miscellaneous	150,000
Total	$ 3,300,000

VI.—Hurricane of September 10-16.—This hurricane, of small diameter, was located by aircraft reconnaissance on the afternoon of the 10th and was centered at latitude 19.1° N., longitude 50.2° W., or about 1000 miles east of Puerto Rico. It moved on a curving bend to the northwest and north, and passed more than 300 miles east of Bermuda on the 15th. Thereafter, it moved rapidly northeastward over the Atlantic. Strongest winds were about 140 m.p.h.

VII.—Hurricane of October 1-5.—A tropical disturbance that had been under observation in the Atlantic for several days increased to gale force with center at 10:30 a.m. on October 1 near latitude 30°N., longitude 64.5°W., or about 160 miles south of Bermuda. By late afternoon it had developed into a hurricane of considerable force but it passed over the Atlantic well to the east of the U. S. coast and did not affect any land area. It followed a northwesterly course until the afternoon of the 2d, when a change for a short time to a westerly course saved Bermuda from destructive winds. Thereafter, it recurved to a north-northeasterly course.

Highest winds were estimated at 110 m.p.h., occurring on the morning of October 4.

VIII.—Tropical Disturbance of October 1-4.—This disturbance formed in the middle Gulf of Mexico in a weak easterly wave which had moved very little for two or three days. On October 1 and during the morning of October 2 it appeared that there was a closed circulation. On the afternoon of the 2d reports by plane indicated that there was only an area of heavy squalls without cyclonic development. The storm moved toward the northwest and west until the morning of the 3d, when it curved to the west-southwest and moved inland on the northern coast of Mexico near Sota la Marina on the morning of the 4th.

Strongest winds reported were 55 m.p.h. on October 2. Winds in the Brownsville-Port Isabel area were 30 to 40 m.p.h. with gusts to 50 m.p.h.

No damage was reported, although the Coast Guard had to go to the assistance of four fishing vessels off the lower Texas coast.

IX.—Gulf Hurricane of October 8-10.—This hurri-

cane formed in the western Gulf of Mexico a short distance north of Yucatan in a wave which had been nearly stagnant for 2 days. Aircraft reconnaissance reports on October 8 indicated no circulation but the flight during the morning of October 9 showed a definite circulation with winds of hurricane force. The center moved westward and southwestward and passed inland a short distance south of Veracruz the night of October 10.

Strongest winds reported at a land station were 75 m.p.h., with gusts to 110 m.p.h. at Veracruz.

Damage to banana plantations was heavy as far north as Tuxpam. Losses experienced by electric light and telephone companies, agriculturists, the government, ship owners and individuals amounted to millions of pesos.

X.--Hurricane of October 13-16.--This hurricane began as a small tropical storm which was discovered by a ship about 650 miles southeast of Bermuda on the afternoon of October 13. It developed to full hurricane force during the night. From a position near latitude 26.3° N., longitude 56.5° W., the storm moved northwestward until the afternoon of the 14th, when it curved to the north-northeast. It passed over the Atlantic well to the east of the U. S. coast and did not affect any land areas.

Highest winds were estimated at 115 m.p.h. over a small area near center.

XI.--Hurricane of October 15-19.--This hurricane formed over the northwestern Caribbean Sea on October 15 from a low pressure area that had been noted for several days previously. It moved northeastward past western Jamaica and turned more northward across Cuba just west of Camaguey on the night of the 16-17th as a very small hurricane. Winds reached 98 to 104 m.p.h. north of the Cuban coast at about 9:00 a.m. on the 17th, and lowest pressure at the time was 29.18 inches.

From 15 to 25 inches of rain fell on the Island of Jamaica during the period October 15 through 17, and there was considerable damage to crops, highways, transportation, and communications from floods and hurricane winds.

During the 17th the storm moved north-northwestward over the Florida Straits and gained considerable force, although it remained very small in diameter. The center passed directly over the city of Miami near midnight of the 17-18th with a calm center that was only about 5 miles in diameter. The calm center passed between the Weather Bureau Office in Tech High Building and the Airport Station at 36th Street Airport. Neither station received the flat calm, but the Weather Bureau Office was in the eastern edge while the Airport Station was in the western edge of the eye. The highest wind speed measured in the vicinity was at the Weather Bureau Office downtown. This was a 1-minute sustained speed of 122 m.p.h. at 12:30 a.m. on the 18th, with estimated gusts of about 150 m.p.h.

The strongest 5-minute sustained speed was 97 m.p.h. from the northeast at 11:40 p.m. on the 17th in the first part of the storm, whereas the maximum for 1-minute occurred in the second half after passage of the center. The highest speed at the Airport Station was 125 m.p.h. from a gust recorder.

The lowest sea level pressures recorded were 28.25 inches at the downtown office and 28.34 inches at the airport. However, a standard microbarograph owned by a Weather Bureau employee, located at his home near the central part of the path, gave a reading of 28.20 inches. Portions of the microbarograph traces for the two stations are reproduced in figure 1.

The path of principal destruction was only about 7 to 10 miles wide through the greater Miami area and northward to west Fort Lauderdale. So sharply defined was this principal damage zone that one passed from the severe damage into the minor damage area within half a mile. In fact, the path of major damage was at first reported as resulting from a tornado or tornadoes, but a careful inspection by the Miami Weather Bureau Official immediately after the storm failed to reveal any evidence of tornadic action. This path of principal destruction is shown in figure 2.

After leaving the lower east coast area, the center passed very close to Lake Okeechobee and on northward nearly parallel to the east Florida coast and slightly west of Orlando, and into Georgia between Jacksonville and Lake City. It retained considerable force throughout its journey in Florida and gave winds of near hurricane force as far north as Jacksonville, so that considerable damage was done in the entire eastern portion of the state.

A summary of casualties and estimated damage follows:

CASUALTY AND DAMAGE SUMMARY FOR FLORIDA

Deaths, including one in Georgia	4
Major injuries	16
Minor injuries	183
Homes destroyed:	
Houses	92
Trailers	156
Major Damage:	
Houses	580
Trailers	188
Minor or superficial damage:	
Houses	20,281
Trailers	60
Families suffering loss	28,954

DAMAGE ESTIMATES

Property damage	$ 18,000,000
Crop damage	4,000,000
Power and communications	3,000,000
Highways, bridges, and city streets	250,000
Miscellaneous -- includes trees, ornamental shrubbery, sea walls, a few small craft, and general clean up	2,500,000
Total for Florida	$ 27,750,000

This was the worst hurricane from the standpoint of wind velocity and property damage that has visited the greater Miami area since the great hurricane that devastated the city in 1926. While it was a violent small hurricane, it cannot be compared with the one of that year.

A tabular listing of meteorological data associated with this hurricane is contained in table 3.

XII.--Gulf Hurricane of October 18-21.--Forming in the Gulf of Mexico south of the Louisiana coast on October 18, this storm moved on a curving path, first toward the southeast and then northeast. It developed hurricane force in the middle Gulf and threatened Florida for a time, and hurricane warnings were issued for the west coast. As it approached however, dry air entered the system and it quickly lost hurricane force before moving into Florida near Cedar Keys on the morning of the 21st. Strongest winds over the Gulf, estimated by reconnaissance planes, were 90 m.p.h., with gusts over 100 m.p.h. just east of the center. The strongest winds reported by coastal points did not exceed 50 m.p.h. and no damage resulted.

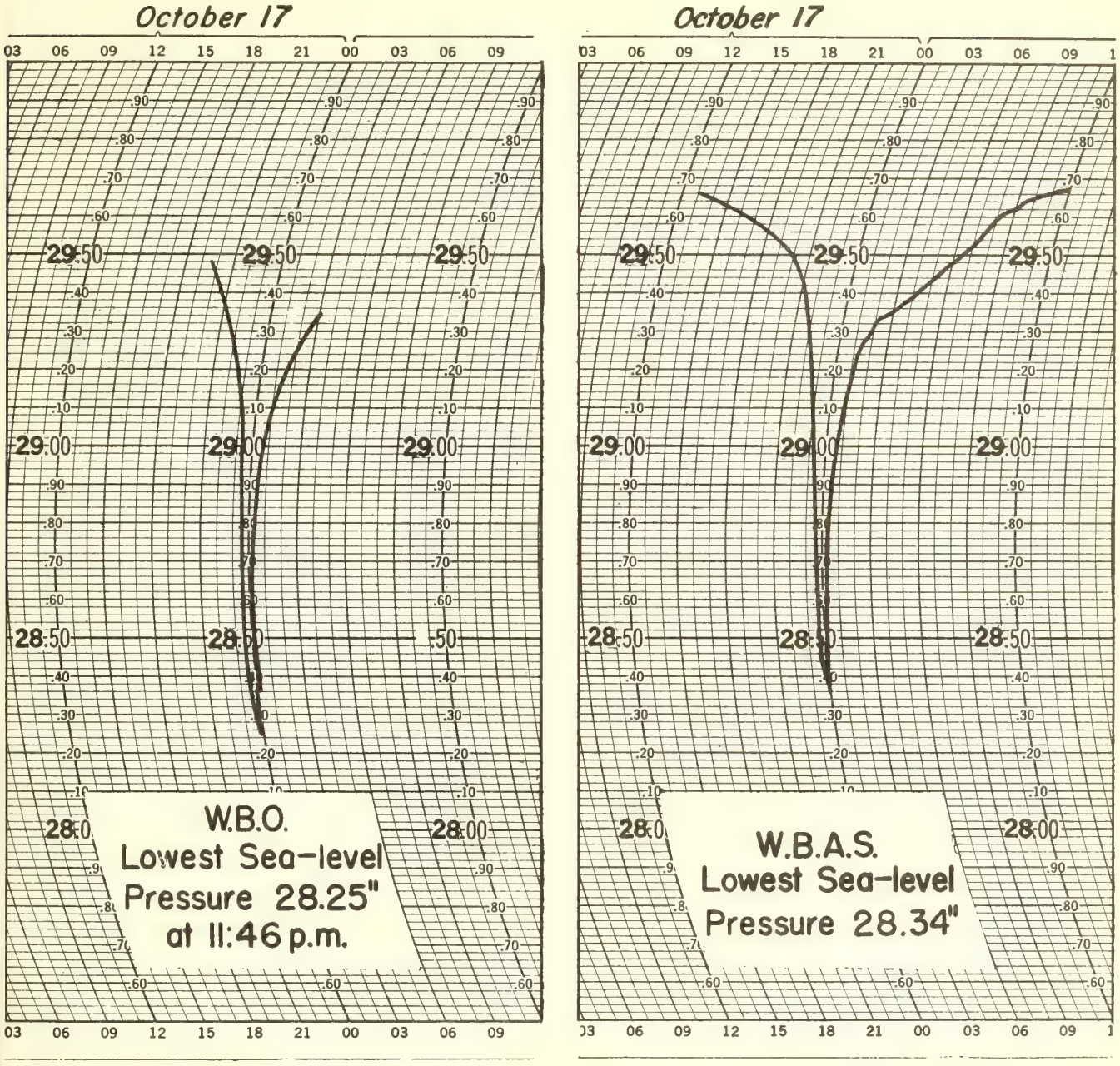


FIGURE 1.-Microbarograph traces (reconstructed) at Miami, Fla., during passage of hurricane of October 15-19, 1950

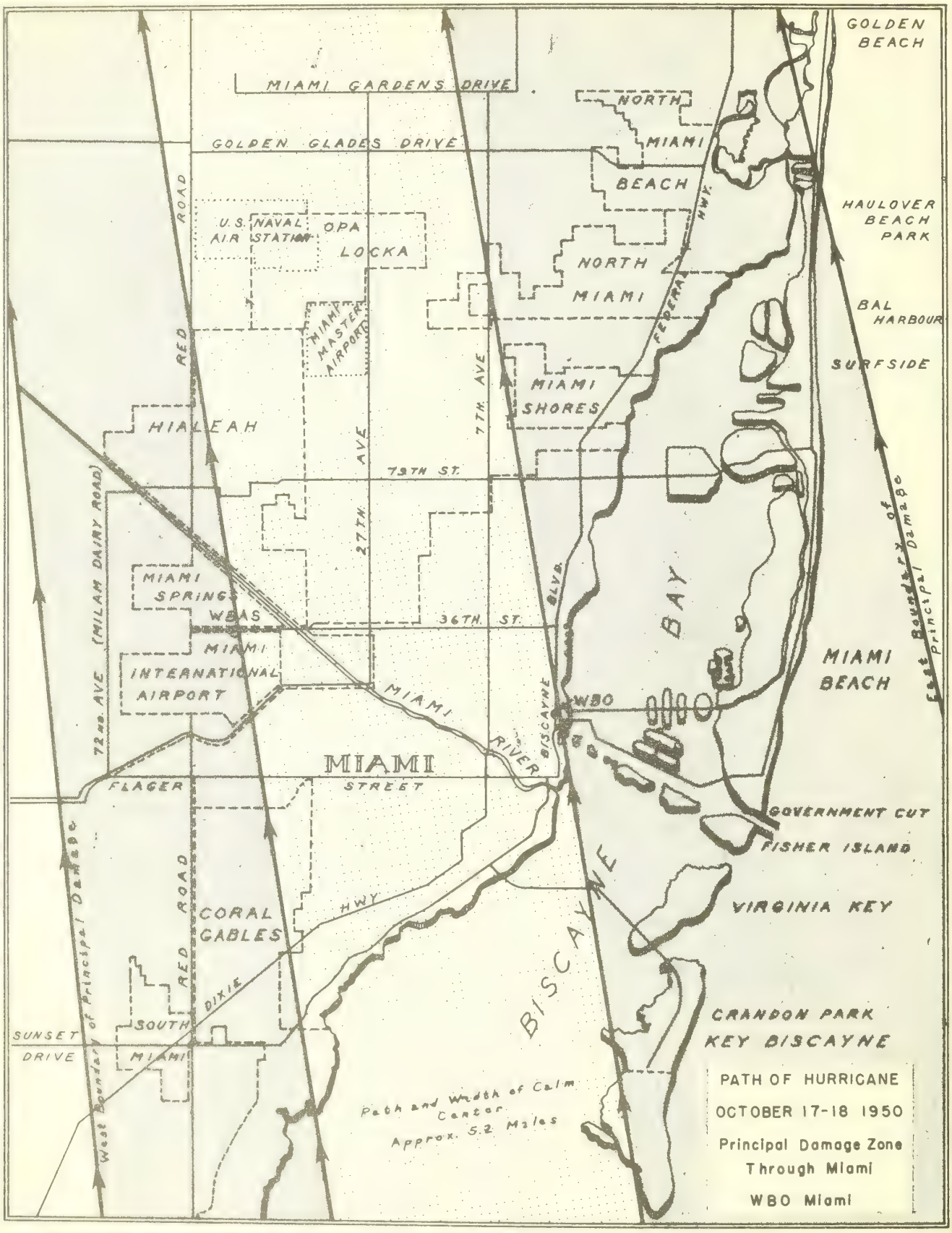


FIGURE 2.-Path of principal destruction through Greater Miami area during passage of hurricane of Oct. 15-19, 1950

HURRICANE DATA

Table 18 — for storm of — August 20-31, 1950

Station	Date	Pressure [1] Low	Pressure [1] Time	Wind [2] 5-min. max.	Wind [2] Time	Wind [2] 1-min max.	Wind [2] Time	Wind [2] Gusts	Hours of gales [3]	Rainfall	Miscellaneous
Tallahassee, WBO	30-	-----	--------	------	--------	------	--------	54 SE	--	0.27	
	31	29.67	2:30 a.m.	------	--------	------	--------	-----	--	7.07	
Apalachicola, WBO	30-	-----	--------	37 SE	1:30 p.m.	40 SE	1:31 p.m.	-----	--	----	
	31	29.59	4 a.m.	37 SE	12:49a.m.	45 SE	12:49a.m.	-----	--	6.14	
St. Andrew	30-	29.62	10 p.m.	70 SE	12 midt.	------	--------	-----	3	1.16	
	31	-----	--------	------	--------	------	--------	-----	--	4.40	
	9/1	-----	--------	------	--------	------	--------	-----	--	9.40	
Crestview	30	28.14	11:28p.m.	35 ESE	10:25p.m.	------	--------	-----	‡2	5.29	
Valparaiso	30	-----	--------	†50 SE	†11 p.m.	†75 SE	†11 p.m.	-----	--	----	
Pensacola, WBO	30	29.27	10 p.m.	42 SE	8:48 p.m.	45 SE	8:51 p.m.	67 SE at NAS	6	7.37	
Evergreen	30	27.23	10:27p.m.	40 ESE	10:30p.m.	------	--------	-----	--	2.70	
Dothan	30	29.59	11:58p.m.	30 ESE	11:58p.m.	------	--------	-----	--	1.50	
Mobile, WBO	30	29.16	10 p.m.	38 NE & N	8 p.m.	40 NE	8 p.m.	-----	--	3.98	
Anniston, WBO	31	29.60	5:30 a.m.	------	--------	45 E	5:30 a.m.	45 E	2	1.08	
Birmingham, WBO	31	29.32	5:30 a.m.	44 SE	5:34 a.m.	45 SE	4:34 a.m.	50 SE	2	1.86	

for storm of — September 1-7, 1950

Station	Date	Pressure [1] Low	Pressure [1] Time	Wind [2] 5-min. max.	Wind [2] Time	Wind [2] 1-min max.	Wind [2] Time	Wind [2] Gusts	Hours of gales [3]	Rainfall	Miscellaneous
Hillsboro Lt.	3	*29.55	3:45 p.m.	56 SE	4:12 p.m.	68 SE	4:13 p.m.	-----	24	----	
Carrysfort Lt.	3	*29.55	4 p.m.	49 SE	3:34 p.m.	54 SE	3:38 p.m.	-----	33	----	
Dry Tortugas	3	29.25	12 noon	71 NE	8:56 a.m.	73 NE	8:41 a.m.	-----	19	----	
Alligator Lt.	3	*29.60	11:45a.m.	60 NE	7:53 p.m.	66 NE	7:54 p.m.	-----	18	----	
Sombrero Lt.	3	29.56	1:20 p.m.	70 S	7:30 a.m.	75 S	1:30 p.m.	-----	54	----	
Key West, WBAS	3	29.51	9 a.m.	55 ESE	8:04 a.m.	60 E	8:07 a.m.	71	10	----	
Miami, WBO	3	29.62	3:55 p.m.	52 SE	4:28 p.m.	63 SE	4:32 p.m.	-----	10	2.51	
Sarasota(Red Cross)	3	*29.53	12 midt.	50 SW	12 midt.	*60 SW	12 midt.	-----	24	----	
Egmont Key	4	-----	--------	50 E	4:16 a.m.	61 E	4:17 a.m.	-----	53	----	
Cedar Keys	5	28.30	10:30a.m.	*102 N	9:30 a.m.	------	--------	* 125N	8	24.00	
Clearwater	5	*29.32	--------	------	--------	------	--------	-----	----	12.00	
Tampa, WBO	5	29.19	4 a.m.	40 S	2:48 a.m.	45 S	2:49 a.m.	51 S	3 1/2	7.67	
Anclote Lt.	5	29.08	12:25a.m.	76 SW	12:35a.m.	76 SW	12:35a.m.	-----	----	8.42	
Brooksville	5	*29.25	--------	------	--------	------	--------	-----	----	19.50	
Cross City	5	29.29	4 p.m.	55 NE	5:30 p.m.	65 NE	5:32 p.m.	-----	9	6.70	
Lakeland, WBO	5	29.24	7:20 a.m.	30 S	8:08 a.m.	32 S	8:12 a.m.	-----	----	7.40	
Jacksonville, WBAS	6	29.47	12 midt.	41 NE	6:01 a.m.	52 NE	6:01 a.m.	-----	----	14.08	

for storm of — October 15-19, 1950

Station	Date	Pressure [1] Low	Pressure [1] Time	Wind [2] 5-min max	Wind [2] Time	Wind [2] 1-min max.	Wind [2] Time	Wind [2] Gusts	Hours of gales [3]	Rainfall	Miscellaneous
Miami, WBO	17-18	28.25	11:50 p.m. 17th	97 NE	11:40p.m., 17th	122 S	12:30 a.m. 18th	‡150	14	‡3.50	Lightning and thunder.
Miami, WBAS	17-18	28.34	12 midt.	------	--------	80 NNE	11:59 p.m. 17th	125	----	2.00	
Miami, NAS	18	*28.40	12:30a.m.	------	--------	‡110 S	12:45a.m.	-----	----	-----	
Pompano	18	-----	--------	------	--------	‡85 E	12:30a.m.	‡105	10	4.45	
West Palm Beach,WBO	18	29.30	5:15 a.m.	------	--------	45 E	--------	65	----	4.94	
Vero Beach	18	29.32	9:10 a.m.	------	--------	72 ENE	6:25 a.m.	85-95	----	-----	Tide 4.5 ft. +
Melbourne	18	29.30	10:28a.m.	------	--------	55 ENE	8:10 a.m.	71	----	-----	
Banana River, NAS	18	29.31	11:20a.m.	------	--------	74 E	8:08 a.m.	100	----	-----	
Belle Blade, USE	18	28.80	--------	------	--------	54	--------	87	----	4.06	
Belle Glade Exp.Sta.	18	29.01	5 a.m.	72 E	3:45 a.m.	85E	3:20 a.m.	-----	6	4.37	No lull.
Clewiston, USE	18	28.76	5:06 a.m.	65 NE	4:30 a.m.	------	--------	93 NE	5	5.50	Intermittent lightning and thunder 6 p.m. to midnight 17th.
Moorehaven, USE	18	29.03	6 a.m.	48 ENE	4 a.m.	------	--------	80ENE	4	3.13	Tide about 2 ft.
Canal Point, USE	18	29.01	--------	------	--------	40	--------	81	----	-----	
Okeechobee, USE	18	28.85	--------	------	--------	40	--------	80	----	4.93	
St. Lucie Lock, USE	18	29.25	--------	------	--------	56	--------	70	----	4.59	
Ortona Lock, USE	18	29.25	--------	------	--------	28	--------	61	----	1.96	
Port Mayaca, USE	18	29.02	--------	------	--------	48	--------	76	----	4.26	
Lakeland	18	29.27	12:45p.m.	29 N	10:18a.m.	32 N	10:20a.m.	45	----	.91	
Daytona Beach, WBO	18	29.33	3:30 p.m.	53 NE	12:28p.m.	------	--------	81	2 1/2	4.36	Tide 4.0 ft. Much beach erosion.
Crescent City	18	-----	--------	45	2 p.m.	------	--------	-----	----	8.36	Lull between 4 and 6 p.m.
St. Augustine Beach	18	*29.32	4:20 p.m.	------	--------	------	--------	#87	----	-----	Tide 5 ft. +
St. Augustine Lt.	18	*29.38	11 p.m.	57 NE	2:07 p.m.	60 NE	2:08 p.m.	-----	3	5.00	Tide 5 ft. +. Lower portions of city flooded
Fernandina	18	*29.42	6 p.m.	------	--------	‡60 NE	6-7:30p.m.	‡85	----	5.61	
Jacksonville, WBAS	18	29.43	6:45 p.m.	62 NE	5:15 p.m.	72 E	6:06 p.m.	‡82	8	5.75	Much damage from high tides at beaches.
Jacksonville, NAS	18	29.36	6:09 p.m.	------	--------	------	--------	77 NE	----	-----	
Orlando, WBAS	18	29.15	12:50p.m.	------	--------	48 NE	10:10a.m.	82	----	14.19	
Gainesville	18	29.28	6 p.m.	------	--------	35 NE	--------	-----	----	4.68	
Lake Placid	18	*29.26	8:30 a.m.	55 NNE	4:30 a.m.	55 NNE	4:30 a.m.	60	4	3.94	Lull 7 to 8 a.m. but no flat calm.
Sanford	18	*29.22	2:30 p.m.	‡50 NE	10:30a.m.	------	--------	‡75-80	4	9.83	
Raiford	18	*29.28	7 p.m.	‡50 NE	4 p.m.	------	--------	-----	----	4.31	
Light Stations:											
Carysfort Reef	17	29.09	10 p.m.	54 N	7:39 p.m.	66 N	7:39 p.m.	-----	13	-----	
Hillsboro Light	18	*29.24	1:45 a.m.	77 SE	1:24 a.m.	91 SE	1:35 a.m.	-----	23	-----	
Jupiter Light	18	29.47	7 a.m.	47 E	2:28 a.m.	65 E	2:28 a.m.	-----	----	-----	
Cape Canaveral	18	*29.36	11:30a.m.	57 NE	9:30 a.m.	75 NE	12 noon	-----	----	-----	

1 Pressure in inches and reduced to sea level unless otherwise indicated.
2 Wind speed is given in miles per hour.
3 Over 38 miles per hour.
* Uncorrected.
‡ Estimated.
† Approximately.
Power failed, - wind estimated higher.

WBO indicates Weather Bureau Office; WBAS, Weather Bureau Airport; NAS, Naval Air Station; USE, U. S. Engineers; Lt., lighthouse.

HURRICANES AND TROPICAL DISTURBANCES

Table 18a (Number of storms in table corresponds to number of tracks on chart at end of publication) YEAR 1950

Storm number	Date	Area where first reported	Coast lines crossed	Highest wind speed reported	Lowest pressure reported	Place of dissipation reported	Intensity	Remarks
1.	Aug.12-21	Near latitude 21°N; longitude 62°W.	Nova Scotia	140 m.p.h. estimated by aircraft	28.15 in.	Over Nova Scotia & Cape Breton Is.	Hurricane	No damage reported.
2.	Aug.20-31	Near latitude 17°N; longitude 60.4°W; east of the Leeward Islands.	Cuba and Florida	120 m.p.h. reported by Antigua; 115 m.p.h. estimated by reconnaissance plane on 30th. Only 75 to 85 m.p.h. on coast, except in the tornado near Apalachicola	No data	120 miles northwest of Birmingham	Hurricane	Total damage in Florida estimated at $550,000, of which $200,000 was to property, $250,000 to highways, and $100,000 to crops. In Alabama damage to property amounted to $500,000 and to crops $1,500,000. One person was killed and two injured in Alabama.
3.	Aug. 27-Sept. 4	Near latitude 21°N; 52.2°W; or about 900 miles east-northeast of Puerto Rico.	None	115 m.p.h. estimated by aircraft	No data	Over the ocean several hundred miles southeast of Nova Scotia	Hurricane	Did not touch land.
4.	Aug. 30-Sept. 13	Near latitude 16.5°N; longitude 57.6°W; or about 240 miles east of Antigua	Passed close to British West Indies and within 85 miles of Nantucket, Mass.	160 m.p.h., estimated by aircraft	28.72 estimated by PAA	Over the ocean several hundred miles east-southeast of Nova Scotia	Severe hurricane	Damage in New England estimated at $2,000,000. Twelve persons lost their lives. In the British West Indies damage amounted to over $1,075,000 and there were two deaths from drowning.
5.	Sept. 1-7	Near latitude 20°N; longitude 83°W; south of the Isle of Pines	Florida	125 m.p.h. at Cedar Keys	28.30 in. at Cedar Keys	Near Alma, Ga.	Hurricane	Total damage in Florida estimated at $3,300,000. Two persons were killed and 27 injured.
6.	Sept. 10-16	Near latitude 19°N; longitude 50°W; 1,000 miles east of Puerto Rico.	None	140 m.p.h. estimated by aircraft	No data	Over the ocean, lat.39.7° N, long. 46.9°W.	Hurricane	Did not touch land.
7.	Oct. 1-4	Near latitude 30°N; longitude 64.5°W; or about 160 miles south of Bermuda.	None	100 m.p.h. estimated by aircraft	No data	Over the ocean near lat. 45°N, long.55°W.	Hurricane	Did not touch land.
8.	Oct. 1-4	Middle Gulf of Mexico, near latitude 24°N; longitude 87.5°W.	Northern Mexico	58 m.p.h.	No data	In Mexico	Not of hurricane intensity	No damage reported.
9.	Oct. 9-10	In Gulf of Mexico, a short distance north of Yucatan.	Southeastern Mexico	75 m.p.h., with gusts of 110 m.p.h. at Veracruz	No data	In Mexico	Hurricane	Considerable damage in Mexico, reported by Foreign Service of U.S.A. Losses estimated at several million pesos, and at least six lives were lost.
10.	Oct.13-16	Near latitude 26°N; longitude 56.5°W; or about 650 miles southeast of Bermuda.	None	115 m.p.h. estimated by aircraft	No data	Near lat. 39°N, long.50°W.	Hurricane	Did not touch land.
11.	Oct.15-19	Over the northwest Caribbean Sea; about 80 miles west of western end of Jamaica.	Cuba and Florida	122 m.p.h. at WBO in Miami	28.25 at WBO, Miami	Between Coffinton and Sanford,Ga.	Severe hurricane	Total damage in Florida estimated at $27,750,000, of which $23,750,000 was property damage and $4,000,000 crop damage. Damage in Georgia $250,000. Four persons lost their lives and 199 were injured.
12.	Oct.18-21	In Gulf of Mexico south of Louisiana coast.	Florida, near Cedar Keys	90 m.p.h. over the Gulf, with gusts of over 100 m.p.h.; 50 m.p.h. over land.	No data	Near Cedar Keys,Fla.	Hurricane	No damage as hurricane had lost force when it entered Florida.

NORTH ATLANTIC HURRICANES AND TROPICAL DISTURBANCES FOR PAST YEARS

Table 19

Year	Total number of occurrences	Number reaching United States Coast	Loss of life in United States	Damage in United States
1915	5	2	550	$63,000,000
1916	13	3	107	33,324,000
1917	2	1	5	170,000
1918	4	1	34	5,000,000
1919	4	1	287	22,000,000
1920	4	2	2	3,000,000
1921	5	1	5	3,000,000
1922	5	0	0	0
1923	5	1	0	19,300
1924	8	1	2	Minor
1925	3	1	6	do
1926	10	3	269	106,500,000
1927	7	0	0	0
1928	6	3	1,836	25,000,000
1929	2	2	3	653,000
1930	2	1	0	Negligible
1931	8	3	0	0
1932	11	5	0	0
1933	21	5	63	45,650,000
1934	11	4	17	4,760,000
1935	5	2	414	11,500,000
1936	17	6	9	2,300,000
1937	9	5	0	42,500
1938	8	4	600	300,245,000
1939	5	3	3	2,000
1940	8	2	51	4,743,550
1941	6	4	10	7,675,000
1942	8	2	8	27,101,000
1943	10	2	18	17,005,000
1944	10	4	62	163,010,000
1945	10	5	7	80,133,000
1946	6	4	0	7,200,000
1947	10	8	53	135,757,500
1948	10	5	3	18,400,000
1949	11	4	2	58,750,000
1950	12	4	19	35,850,000
Total	281	104	4,445	$1,181,790,850
Mean	7.8	2.9	123.5	32,827,524

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

YEAR 1950

There were two outstanding floods during 1950. The first occurred during the spring of the year in the Red River of the North Basin and the other in the late fall in the Central Valleys of California and western Nevada. The flood in the Red River of North Basin was generally the highest since 1897 at Grand Forks, N. Dak., and since 1826 at the international boundary. At least 9 persons lost their lives in this flood. The preliminary monetary damages were estimated at $33,000,000. Two separate severe floods occurred in the Central Valleys of California and western Nevada; the first in the latter half of November and the second during the first part of December. These floods were record breaking and unusual for so early in the season. The monetary damages were estimated at $23,000,000.

Serious floods occurred in the Ohio Basin throughout most of January. Crests along the Green River in Kentucky were the highest since 1937 and in the Wabash and White Rivers in Indiana since 1943. The crests along the Ohio River were generally the highest since 1945. Severe floods occurred in the Meramec River in Missouri and in the East Gulf of Mexico drainage.

Major flooding occurred again in the Ohio Basin during February with some of the crests along the main stem higher than in January. Flooding along the Red River in Louisiana was the greatest since 1945. The Lower Mississippi continued in flood throughout most of February, with crests in the reach immediately below the mouth of the Ohio River generally the highest since 1937. The Atchafalaya River reached a record stage at Atchafalaya, La.

Severe flooding continued in the Lower Mississippi during March and was comparable to the flood of 1929. Maximum floods occurred in the Root and Zumbro Rivers in the Upper Mississippi Basin. Moderate to heavy flooding occurred in several streams in the East Gulf of Mexico drainage with record floods on the Oostanaula in Georgia.

During April and May, in addition to the severe flooding in the Red River of the North Valley, record breaking floods occurred in the extreme upper portion of the Mississippi River. Severe flooding occurred along the Cannonball and Grand Rivers in the Dakotas and along the St. Joseph River in Ohio during April. Several severe flash floods occurred in the Missouri Basin during May.

Several severe flash floods occurred during June in the Missouri and Ohio Basins. One of the worst of these occurred in central West Virginia. At least 30 persons were drowned and the property damage was heavy. Severe flooding occurred along the Kootenai River in the upper Columbia Basin at Bonners Ferry, Idaho. Stages were high in the main Columbia but were generally well below the record flood of 1948.

Moderate to severe flooding occurred during July in the Kansas and Osage River Basins. The floods in the Big Blue Basin in Nebraska were the severest of record, as was the flash flood which occurred along the Pecatonica River at Darlington, Wis.

The most important flooding during August occurred in the Missouri Basin with near record stages on the Solomon River in Kansas. Severe record floods occurred on small streams in the Great Bend and Hutchinson, Kans., areas.

Several severe flash floods occurred in tributaries in the central Ohio Valley during September causing heavy property damage. Flooding elsewhere was mostly light except in local areas in the Little Blue and Big Blue Basins in Nebraska where moderate to severe flooding occurred.

There was very little flooding during October. The most important and severe flooding occurred near the end of the month in the coastal streams of northern California and Oregon. Considerable property damage resulted from the severe flooding and several lives were lost. Moderate overflow occurred in the Big and Little Blue Basins in Nebraska and Kansas earlier in the month.

The most important flooding during November occurred in the Central Valleys of California and in Western Nevada during the last half of the month where record to near record floods resulted. These floods were unusual for so early in the season and were caused by heavy rains intensified by the melting of snow in the Sierra Nevadas. Heavy monetary losses resulted from these severe floods. Extensive damage occurred to business property in Reno, Nevada, and to agricultural interests in rural areas from the severe floods along the Truckee and Carson Rivers in Nevada. Record to near record stages occurred in some streams along the North Atlantic Slope in eastern and central Pennsylvania and eastern New York from the heavy rain on Nov. 25th and 26th. The flood along Chester Creek was reported to be the highest of record and the flood along Perkiomen Creek the highest in recent years. The Schuylkill reached its highest stage since 1902 at Fairmount Dam (Philadelphia, Pa.).

Severe floods occurred again in December in the Central Valleys of California and Western Nevada. During the December flood the American River reached a crest of 42.7 feet at Sacramento, Calif., as compared to the record crests of 44.03 and 45.75 feet in November. At Exchequer, Calif., the Merced River reached a record stage of 23 feet while the San Joaquin River reached a record stage of 27.9 feet at Vernalis, Calif. The floods in Western Nevada were not as severe as in November except in the West Walker River Basin and in some smaller streams. In the Ohio Basin the earliest winter floods of record were experienced. It was also the first time that flood stage had been exceeded on three different occasions in one calendar year along the middle reach of the Ohio between Cincinnati, Ohio, and Louisville, Ky.

GENERAL SUMMARY OF FLOOD LOSSES FOR 1949*

Monetary losses from floods in the United States estimated at $94,000,000, were considerably less than in 1947 and 1948 but somewhat larger than in 1946. It averaged approximately 35 percent of the flood losses sustained in 1947 and 40 percent of that sustained in 1948. The flood losses in 1949 were approximately 15 percent less than the National Average of 110,000,000 (period 1924-1949). The total loss in life in 1949 was 48 as compared to 82 in 1948, 55 in 1947 and 28 in 1946. It was considerably less than the National Average of 83 lives (last 26 years). The savings resulting from the flood forecasting and warning service was as compiled from fragmentary information approximately $2,500,000, undoubtedly this figure was much greater as savings were reported in less than 20 percent of the River Systems reporting flooding during the year.

The most destructive flooding during 1949 was that due to flash floods in the Potomac and Arkansas Basins in June and that due to ice action in the Middle and Missouri Basins during February and March. Flash floods were frequent and caused the most damage during the last 9 months of the year. A disastrous flood occurred in the Upper Trinity at Fort Worth, Tex. during May which was the worst on record in that area.

*Flood loss statistics for 1948 were published in the August, 1950 issue of Climatological Data, National Summary. Annual flood losses and savings for previous years have been published in the Monthly Weather Review.

*ANNUAL FLOOD LOSSES AND SAVINGS FOR PREVIOUS YEARS HAVE BEEN PUBLISHED IN THE MONTHLY WEATHER REVIEW AS FOLLOWS:

Year	Issue of Review	Pages	Year	Issue of Review	Pages
1933	Vol. 62, No. 1, Jan. 1934	25-27	1940	Vol. 69, No. 7, July 1941	217-218
1934	Vol. 62, No. 12, Dec. 1934	465-467	1941	Vol. 71, No. 11, Nov. 1943	185-186
1935	Vol. 63, No. 12, Dec. 1935	362-365	1942 & 1943	Vol. 73, No. 8, Aug. 1945	137-139
1936	Vol. 65, No. 1, Jan. 1937	28-31	1944 & 1945	Vol. 76, No. 6, June 1948	113-116
1937	Vol. 66, No. 12, Dec. 1938	426-430	1946	Vol. 76, No. 9, Sept. 1948	208-210
1938	Vol. 68, No. 9, Sept. 1940	262-263	1947	Vol. 77, No. 9, Sept. 1949	262-265
1939	Vol. 68, No. 11, No. 1940	329-330			

Table F 1

ESTIMATED FLOOD LOSSES FOR 1949

River and drainage	Urban Property					Rural Property					Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost
	Residential		Commercial		Public	Crops		Livestock	Other		RR's, bridges, Highways, etc.	Public Utilities				
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
HUDSON BAY DRAINAGE																
Souris River	A$66,100	.....	.....	.....	.....	B$203,600	.....	.....	.....	.....	$111,100	.....	.....	.....	$380,800	.....
Red River of North	A57,300	.....	.....	.....	.....	B662,000	.....	.....	.....	.....	19,400	.....	.....	.....	738,700	.....
Total	123,400	.....	.....	.....	.....	865,600	.....	.....	.....	.....	130,500	.....	.....	.....	1,119,500	.....
ST. LAWRENCE DRAINAGE Lake Superior																
Bad and White Rivers	80,000	$20,000	.....	.....	$50,000	250,000	.....	.....	$100,000	.....	.....	.....	.....	.....	500,000	.....
Total	80,000	20,000	.....	.....	50,000	250,000	.....	.....	100,000	.....	.....	.....	.....	.....	500,000	.....
ATLANTIC SLOPE DRAINAGE																
Monocacy River	1,000	100	$200	$125,000	.....	47,500	$9,400	$2,000	2,500	$200	3,000	$600	$1,000	.....	192,500	.....
Potomac and Shenandoah Rivers	115,000	50,400	35,100	186,100	250,000	376,500	6,000	135,000	231,400	15,000	2,600,000	56,000	153,100	$4,860,400	9,070,000	11
Rapidan River	.....	.....	.....	.....	.....	.....	1,000	.....	.....	.....	.....	2,000	.....	.....	3,000	.....
James River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,000	3,000	.....	.....	8,000	.....
Cape Fear, Tar, Neuse and Roanoke Rivers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Pee Dee River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,000	.....	4,000	.....
Reedy River	2,600	3,200	20,000	165,000	27,000	3,000	.....	.....	.....	.....	22,300	500	1,200	.....	244,800	.....
Saluda River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	600	.....	.....	.....	600	.....
Broad River (South Carolina)	.....	.....	.....	.....	.....	9,000	.....	200	.....	.....	.....	.....	1,000	.....	10,200	.....
Congaree River	.....	.....	.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	5,000	.....	15,000	.....
Wateree River	.....	.....	.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	5,000	.....	15,000	.....
Savannah River	.....	.....	.....	.....	.....	.....	.....	200	.....	.....	.....	.....	600	.....	800	.....
Total	118,600	53,700	55,300	476,100	277,000	456,000	16,400	137,400	233,900	15,200	2,630,900	61,100	170,900	4,860,400	9,563,900	14
EAST GULF OF MEXICO DRAINAGE																
Apalachicola River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,000	.....	10,000	.....
Alabama River and tributaries	.....	.....	11,000	2,000	.....	5,000	.....	8,500	3,000	.....	.....	.....	16,300	.....	45,800	.....
Black Warrior River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52,000	52,000	.....
Tombigbee River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	810,000	810,000	.....
Chickasawhay River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25,300	25,300	.....
Leaf River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,200	15,200	.....
Pascagoula River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,200	1,200	.....
Boque Chitto River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,500	10,500	.....
Pearl River	.....	.....	.....	.....	.....	.....	.....	5,000	.....	.....	.....	.....	40,000	731,600	776,600	.....
Total	.....	.....	11,000	2,000	.....	5,000	.....	13,500	3,000	.....	.....	.....	66,300	1,645,800	1,746,600	.....
MISSISSIPPI SYSTEM Upper Mississippi Basin																
Trempealeau River	900	.....	.....	.....	2,500	.....	.....	100	.....	.....	.....	.....	200	.....	3,700	.....
Kickapoo River	600	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	600	.....
Mill Creek	8,100	.....	.....	2,000	.....	.....	.....	.....	6,100	.....	.....	.....	.....	.....	16,200	.....
Rock and Pecatonica Rivers	.....	2,000	.....	.....	4,500	.....	.....	.....	3,000	.....	500	.....	1,200	.....	11,200	.....
Iowa and Cedar Rivers	1,000	.....	.....	.....	5,000	.....	.....	.....	2,000	.....	29,500	.....	.....	.....	37,500	.....
Raccoon River	.....	.....	.....	.....	30,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	30,000	.....
Des Moines River	.....	.....	.....	.....	285,500	.....	.....	.....	.....	.....	.....	.....	21,000	.....	306,500	.....
Total	10,600	2,000	.....	2,000	327,500	.....	.....	100	11,100	.....	30,000	.....	22,400	.....	405,700	.....

See footnotes at end of table.

Table F 1--Continued

ESTIMATED FLOOD LOSSES FOR 1949—Continued

River and drainage	Urban Property					Rural Property					Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost
	Residential		Commercial		Public	Crops		Livestock	Other		RR's, bridges, Highways, etc.	Public Utilities				
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
MISSISSIPPI SYSTEM--CONT.																
Missouri Basin																
Tributaries of Big Hole River (Montana)	.....	.....	.....	.....	.....	$2,300	.....	.....	.....	.....	$6,000	.....	.....	$1,500	$9,800	.....
Ruby and Beaverhead Rivers	.....	.....	.....	.....	.....	24,700	.....	.....	.....	.....	3,100	.....	.....	54,900	82,700	.....
Madison River	.....	.....	.....	.....	.....	9,400	.....	.....	.....	.....	31,900	$121,400	$21,800	176,700	361,200	.....
Shoshone River	.....	.....	.....	.....	.....	11,500	.....	.....	.....	.....	.....	.....	1,000	8,600	21,100	.....
Powder River	.....	.....	.....	.....	$20,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	20,000	.....
Yellowstone River	.....	.....	.....	.....	.....	3,500	.....	$700	$14,500	$200	5,800	.....	38,100	.....	62,800	.....
Little Missouri River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,000	5,000	.....
Knife and Heart Rivers	$30,000	.....	.....	.....	5,000	.....	.....	.....	1,000	.....	5,000	500	9,000	5,000	55,500	.....
Cannonball, Grand and Moreau Rivers	.....	.....	.....	.....	.....	1,000	.....	.....	.....	.....	200	.....	1,900	12,000	15,100	.....
Tributaries of Cheyenne River	198,900	.....	$900	.....	100	.....	.....	.....	.....	.....	.....	.....	200	.....	200,100	.....
Niobrara River	.....	.....	.....	.....	.....	900	.....	.....	.....	.....	.....	.....	.....	.....	900	.....
James River	.....	.....	.....	.....	.....	27,200	.....	.....	.....	.....	400	.....	.....	.....	27,600	1
Vermillion River	.....	.....	.....	.....	.....	29,800	.....	.....	.....	.....	100	.....	.....	.....	29,900	.....
Big Sioux River	2,000	.....	.....	.....	.....	22,800	.....	.....	.....	.....	1,600	.....	200	.....	26,600	.....
Perry Creek (Iowa)	55,000	.....	.....	.....	68,300	.....	.....	.....	.....	.....	.....	.....	8,000	.....	131,300	.....
Floyd River	.....	.....	.....	.....	.....	4,700	.....	.....	.....	.....	.....	.....	.....	.....	4,700	.....
Aowa Creek (Iowa)	20,800	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20,800	.....
Little Sioux River	.....	.....	.....	.....	.....	306,100	.....	.....	.....	.....	138,500	.....	3,300	.....	447,900	.....
Soldier River	.....	.....	.....	.....	.....	35,600	.....	.....	.....	.....	33,700	.....	500	.....	69,800	.....
Boyer River	834,300	.....	.....	.....	.....	B233,100	.....	.....	.....	.....	371,700	.....	83,500	.....	1,522,600	2
Papillion Creek (Nebr.)	.....	.....	.....	.....	.....	43,300	.....	.....	.....	.....	25,500	.....	.....	.....	68,800	.....
Platte River and tributaries	113,700	.....	23,500	.....	1,700	B1,783,200	.....	.....	.....	.....	718,900	9,900	46,800	.....	2,697,700	2
Elkhorn River and tributaries	37,300	.....	4,600	.....	10,000	.....	$42,500	.....	15,500	.....	138,400	200	20,000	.....	268,500	.....
Keg and Silver Creeks (Iowa)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500	.....	.....	500	.....
Nishnabotna River	4,200	.....	.....	.....	.....	26,200	.....	.....	7,000	.....	195,200	.....	7,600	.....	240,200	.....
Little Nemaha River	.....	.....	2,000	.....	.....	490,000	.....	.....	.....	.....	125,300	.....	.....	.....	617,300	.....
Nemaha River and tributaries	10,900	.....	8,500	.....	.....	976,300	.....	11,400	11,500	.....	847,000	7,200	.....	.....	1,872,800	.....
Tarkio River	.....	$2,500	.....	.....	.....	476,500	.....	1,000	.....	1,000	51,800	.....	.....	.....	532,800	.....
Nodaway River	.....	.....	.....	.....	.....	180,200	.....	.....	40,400	.....	125,500	.....	.....	.....	346,100	.....
Platte and 102 Rivers and tributaries	100	.....	.....	.....	100	148,800	.....	.....	1,600	.....	108,700	.....	.....	.....	259,300	.....
Smoky Hill River and tributaries	190,000	.....	400	.....	.....	23,300	.....	.....	4,400	.....	1,600	.....	.....	.....	219,700	.....
Solomon River and tributaries	1,200	.....	.....	.....	.....	46,500	.....	.....	1,600	.....	8,200	.....	.....	.....	57,500	.....
Republican River and tributaries	17,600	.....	.....	.....	.....	221,000	.....	300	9,300	.....	62,700	.....	300	.....	311,200	.....
Little Blue and Big Blue Rivers and tributaries	714,000	.....	8,800	.....	.....	1,880,800	.....	8,300	C129,500	.....	460,400	29,000	.....	.....	3,230,800	.....
Delaware River	.....	.....	.....	.....	.....	156,400	.....	.....	2,400	.....	1,300	.....	.....	.....	160,100	1
Wakarusa River	.....	.....	.....	.....	.....	32,400	.....	.....	400	.....	400	.....	.....	.....	33,200	.....
Stranger Creek	2,000	.....	7,000	.....	.....	265,100	.....	.....	11,000	.....	9,300	100	.....	.....	294,500	.....
Kansas River and minor tributaries	.....	.....	.....	.....	.....	23,700	.....	.....	100	.....	4,400	.....	.....	.....	28,200	.....
Blue River (Missouri)	1,200	.....	.....	.....	.....	84,700	.....	500	1,800	.....	26,100	.....	.....	.....	114,300	.....
Grand River and tributaries	.....	.....	.....	.....	.....	1,307,300	.....	500	18,100	.....	16,300	.....	.....	13,000	1,355,200	.....
Chariton River and tributaries	.....	.....	.....	.....	.....	404,500	.....	.....	2,500	.....	1,800	.....	.....	.....	408,800	.....

See footnotes at end of table.

Table F 1--Continued

ESTIMATED FLOOD LOSSES FOR 1949—Continued

River and drainage	Urban Property					Rural Property					Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost
	Residential		Commercial		Public	Crops		Livestock	Other		RR's, bridges, Highways, etc.	Public Utilities				
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
MISSISSIPPI SYSTEM--CONT.																
Missouri Basin																
Blackwater and Lamine Rivers	.....	.....	.....	.....	.....	$619,200	.....	.....	$13,900	.....	$22,600	.....	.....	.....	$655,700	.....
Moreau Creek (Missouri)	.....	.....	.....	.....	.....	366,100	.....	.....	2,800	.....	1,200	.....	.....	.....	370,100	.....
Marais des Cygnes River and tributaries	.....	.....	.....	.....	.....	112,100	.....	.....	1,700	.....	6,800	.....	.....	.....	120,600	.....
Osage River and tributaries	$200	.....	.....	.....	.....	497,300	.....	.....	3,700	.....	5,600	.....	.....	.....	506,800	.....
Gasconade River	.....	.....	.....	.....	.....	485,200	.....	.....	3,300	.....	4,700	.....	.....	.....	493,200	.....
Missouri River and minor tributaries	57,900	$14,000	$62,000	.....	$20,500	11,893,200	$74,000	$62,400	200,300	$14,000	2,036,700	$103,900	$554,800	$30,000	15,123,700	.....
Total	2,291,300	16,500	117,700	.....	125,700	23,255,900	116,500	85,100	498,300	15,200	5,604,400	272,700	797,000	306,700	33,503,000	6
Ohio Basin																
Monongahela River	.....	.....	.....	.....	3,300	.....	.....	.....	.....	.....	.....	.....	60,000	.....	63,300	.....
Elk River	50,000	5,000	1,000	.....	10,000	50,000	.....	200	10,000	.....	572,000	1,000	20,000	.....	719,200	1
Rolling Fork (Salt River)	1,500	.....	.....	.....	1,500	.....	800	.....	800	.....	300	300	.....	.....	5,200	.....
West Fork (Indiana)	.....	5,000	.....	.....	5,000	38,000	3,000	.....	.....	.....	4,000	.....	35,000	.....	90,000	.....
East Fork (Indiana)	41,000	20,000	30,000	$35,000	20,000	795,000	15,000	3,000	15,000	5,000	166,000	11,000	14,000	50,000	1,220,000	.....
White River	.....	.....	2,000	1,000	.....	15,000	.....	.....	2,000	.....	5,000	1,000	.....	.....	26,000	.....
Wabash River	15,000	5,000	1,000	.....	.....	65,000	4,000	.....	.....	.....	55,000	.....	18,000	.....	163,000	2
Straight Creek (St. Charles, Va.)	.....	.....	.....	3,000	500	.....	.....	.....	.....	.....	6,000	500	.....	.....	10,000	.....
Cumberland River	29,000	.....	195,000	.....	1,000	.....	.....	.....	.....	6,000	.....	.....	.....	.....	231,000	.....
Swannanoa River	.....	3,100	18,900	13,800	8,500	4,200	.....	.....	5,000	.....	43,500	.....	.....	9,700	106,700	.....
Turkey and Sinking Fork Creeks (Tennessee)	2,000	.....	.....	1,900	800	3,000	.....	.....	.....	.....	1,000	.....	.....	.....	8,700	.....
Nolichucky River	3,000	.....	.....	.....	.....	9,000	.....	.....	.....	.....	8,000	.....	.....	.....	20,000	.....
Pigeon River	1,600	.....	800	7,500	1,000	12,700	.....	.....	1,600	.....	59,000	.....	.....	12,800	97,000	.....
French Broad River	.....	500	6,200	600	.....	$1,074,500	.....	.....	1,600	.....	46,800	.....	.....	114,000	1,244,200	.....
Little Tennessee River	.....	.....	.....	.....	.....	80,000	.....	.....	.....	.....	20,000	.....	.....	.....	100,000	.....
Hiwassee River	.....	.....	.....	.....	.....	25,000	.....	.....	.....	.....	10,000	.....	.....	.....	35,000	.....
Ohio, Barren and Green Rivers	6,000	1,500	500	40,000	2,700	469,200	1,300	400	44,600	5,200	11,800	.....	32,000	.....	615,200	4
Total	149,100	40,100	255,400	102,800	54,300	2,640,600	24,100	3,600	80,600	16,200	1,008,400	13,800	179,000	186,500	4,754,500	7
White Basin																
Black River	28,700	.....	.....	.....	.....	13,900	.....	.....	44,800	.....	96,300	.....	121,200	.....	304,900	.....
Little Red River	12,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,600	.....	66,000	.....	86,600	.....
White River	5,800	.....	.....	.....	.....	14,800	.....	.....	41,200	.....	162,900	.....	66,400	.....	291,100	....
Total	46,500	.....	.....	.....	.....	28,700	.....	.....	86,000	.....	267,800	.....	253,600	.....	682,600	.....
Arkansas Basin																
Little Arkansas River	.....	.....	.....	.....	1,500	30,000	.....	.....	.....	.....	1,000	.....	5,000	.....	37,500	.....
Walnut River	.....	.....	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....	5,000	.....
Chikaskia River	.....	.....	.....	.....	10,000	25,000	.....	1,200	9,000	1,500	11,000	.....	3,000	.....	60,700	.....
Salt Fork River (Kansas)	1,000	.....	1,000	.....	100,000	162,000	.....	5,000	15,000	40,000	60,000	100	.....	.....	384,100	.....
Cimarron River	56,500	46,000	61,500	27,400	151,000	263,000	22,000	6,700	47,000	18,400	131,500	45,000	127,100	.....	1,003,100	.....
Caney River	.....	.....	.....	.....	.....	5,000	.....	500	.....	.....	5,000	.....	.....	.....	10,500	.....
Verdigris River	.....	.....	.....	.....	.....	.....	.....	.....	1,000	2,500	.....	.....	.....	.....	3,500	.....
Neosho and Cottonwood Rivers and tributaries	500	.....	.....	.....	300	40,400	.....	.....	2,100	.....	3,000	.....	5,000	.....	51,300	.....

See footnotes at end of table.

ESTIMATED FLOOD LOSSES FOR 1949—Continued

Table F 1--Continued

River and drainage	Urban Property					Rural Property					Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost
	Residential		Commercial		Public	Crops		Livestock	Other		RR's, bridges, Highways, etc.	Public Utilities				
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
MISSISSIPPI SYSTEM--CONT.																
Arkansas Basin--Cont.																
Canadian River and tributaries	.....	.....	.....	.....	.....	$221,500	.....	.....	.....	.....	$712,600	.....	.....	$18,000	$952,100	.....
Poteau River	$5,000	.....	$2,000	.....	$13,000	20,000	.....	$14,000	$5,000	.....	.....	$2,000	$3,000	.....	64,000	.....
Arkansas River and minor tributaries	87,800	$25,500	84,000	$45,000	159,500	2,286,500	.....	640,500	70,800	$14,100	288,300	10,500	29,400	300,000	3,441,900	.....
Total	150,800	71,500	148,500	72,400	435,300	3,058,400	$22,000	67,900	149,900	76,500	1,212,400	57,600	172,500	318,000	6,013,700	.....
Red Basin																
Ouachita River	.....	.....	.....	.....	.....	.....	.....	500	2,000	.....	30,000	.....	20,500	.....	53,000	2
Little River	.....	.....	.....	.....	.....	.....	.....	1,100	.....	.....	8,500	.....	5,200	.....	14,800	.....
Sulphur River	.....	.....	.....	.....	.....	161,000	.....	.....	4,000	.....	102,000	.....	8,000	.....	275,000	.....
Red River (above Alexandria, La.)	.....	.....	.....	.....	.....	21,000	.....	1,000	.....	.....	.....	.....	.....	.....	22,000	.....
Total	.....	.....	.....	.....	.....	182,000	.....	2,600	6,000	.....	140,500	.....	33,700	.....	364,800	2
Lower Mississippi Basin																
St. Francis River	.....	.....	.....	.....	.....	10,300	.....	.....	1,000	.....	1,000	.....	13,000	.....	25,000	.....
Yazoo, Tallahatchie, Coldwater and Sunflower Rivers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,560,000	6,560,000	.....
Mississippi River and minor tributaries, including Atchafalaya, Red below Alexandria, La., Ouachita and Black in Louisiana	39,000	.....	15,000	.....	6,000	186,200	5,000	1,500	38,000	2,000	2,523,300	6,000	663,100	.....	3,435,200	.....
Total	39,000	.....	15,000	.....	6,000	196,500	5,000	1,500	39,000	2,000	2,523,300	6,000	663,100	6,560,000	10,020,200	.....
WEST GULF OF MEXICO DRAINAGE																
Mermentau River	.....	.....	.....	.....	2,400	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,400	.....
Sabine River	.....	.....	50,000	.....	45,000	.....	.....	.....	.....	.....	.....	.....	405,000	.....	500,000	.....
Trinity River	1,975,800	2,806,200	34,800	5,239,300	469,000	1,417,400	3,000	135,300	223,300	56,800	1,814,100	255,500	1,485,000	.....	15,915,500	14
Brazos River	312,600	.....	.....	.....	.....	987,600	.....	.....	500	.....	154,000	1,800	.....	.....	1,456,500	.....
San Antonio River	10,000	5,000	.....	.....	185,900	.....	.....	.....	.....	.....	.....	.....	.....	.....	200,900	2
Guadalupe River	2,000	.....	300	.....	.....	193,000	.....	200	57,400	.....	600	100	.....	.....	253,600	.....
Atascosa River	50,000	8,000	.....	10,000	5,000	.....	.....	1,000	11,300	.....	110,500	.....	2,200	.....	198,000	.....
Rio Grande	35,000	5,500	400	.....	127,000	3,307,800	.....	100	2,300	.....	17,000	1,000	442,000	.....	3,935,100	2
Total	2,385,400	2,824,700	85,500	5,249,300	834,300	5,905,800	3,000	136,600	294,800	56,800	2,096,200	258,400	2,334,200	.....	22,462,000	18
GULF OF CALIFORNIA DRAINAGE																
Colorado Basin																
Gila River	7,000	3,000	.....	.....	33,000	26,300	.....	2,000	25,000	10,000	48,100	.....	1,000	.....	155,400	.....
Total	7,000	3,000	.....	.....	33,000	26,300	.....	2,000	25,000	10,000	48,100	.....	1,000	.....	155,400	.....
PACIFIC SLOPE DRAINAGE																
Sacramento-San Joaquin Basin																
Cosumnes River	1,100	.....	.....	.....	.....	16,500	.....	600	11,400	600	3,000	200	8,600	.....	42,000	.....
Sacramento River	.....	.....	.....	.....	.....	12,500	.....	500	12,500	.....	1,000	500	2,000	.....	29,000	.....
Total	1,100	.....	.....	.....	.....	29,000	.....	1,100	23,900	600	4,000	700	10,600	.....	71,000	.....
Columbia Basin																
Tualatin and Umatilla Rivers and Johnston Creek	150,000	10,000	.....	.....	25,000	.....	.....	.....	50,000	.....	1,700,000	16,000	15,000	.....	1,966,000	.....
Total	150,000	10,000	.....	.....	25,000	.....	.....	.....	50,000	.....	1,700,000	16,000	15,000	.....	1,966,000	.....

See footnotes at end of table.

Table F 1--Continued

ESTIMATED FLOOD LOSSES FOR 1949—Continued

River and drainage	Urban Property					Rural Property					Other Property		Miscellaneous	Unclassified	Total Loss	Lives Lost
	Residential		Commercial		Public	Crops		Livestock	Other		RR's, bridges, Highways, etc.	Public Utilities				
	Fixed	Movable	Fixed	Movable		Growing	Stored		Fixed	Movable						
PACIFIC SLOPE DRAINAGE--CONT.																
Chehalis Basin																
Chehalis River	.....	.....	.....	.....	.....	$10,000	.....	.....	$5,000	.....	$11,600	.....	.....	.....	$26,600	.....
Total	.....	.....	.....	.....	.....	10,000	.....	.....	5,000	.....	11,600	.....	.....	.....	26,600	....
PUGET SOUND																
Snohomish River	$11,500	$500	$10,000	.....	.....	10,000	.....	$4,500	5,000	.....	20,000	.....	$85,000	.....	146,500	.....
Stillaquamish River	.....	.....	.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....	.....	10,000	.....
Skagit River	32,000	14,000	8,500	$5,000	$4,500	5,500	$2,200	5,000	163,500	$7,000	51,000	$29,500	5,600	.....	333,300	.....
Nooksack River	.....	100	.....	.....	1,700	.....	.....	.....	13,800	.....	36,000	.....	35,000	.....	86,600	1
Total	43,500	14,600	18,500	5,000	6,200	25,500	2,200	9,500	182,300	7,000	107,000	29,500	125,600	.....	576,400	1
Grand Total	5,596,300	3,053,100	706,900	5,909,600	2,174,300	36,895,100	189,200	464,900	1,788,800	199,500	17,515,100	716,800	4,844,900	13,877,400	93,931,900	48

A. Includes all urban property.
B. Includes growing and stored crops.
C. Includes movable equipment.
D. Chiefly crop losses.

LOSS OF LIFE AND PROPERTY IN THE UNITED STATES FROM FLOODS

Table F 2 — BY DISTRICTS AND YEARS*, 1902-48

District	1902-03		1903-04		1904-05		1905-06		1906-07	
	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property
North Atlantic-----	----	$----------	----	$ 4,350,000	----	$----------	----	$----------	----	$ 1,000,000
South Atlantic-----	61	4,500,000	----	----------	----	----------	----	----------	----	----------
Ohio Valley--------	----	176,000	----	75,000	----	----------	----	----------	7	8,963,000
Upper Mississippi--	100	40,425,000	----	100,000	2	10,400,000	1	400,000	----	103,000
Lower Mississippi--	1	500,000	----	20,000	----	100,000	----	----------	----	500,000
Texas--------------	16	5,015,000	----	----------	----	----------	----	----------	----	----------
Pacific------------	a	2,500,000	----	2,000,000	----	500,000	----	----------	----	5,010,000
Total	178	53,116,000	----	6,545,000	2	11,000,000	1	400,000	7	15,576,000

District	1907-08		1908-09		1909-10		1910-11		1911-12	
	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property
North Atlantic-----	----	----------	----	239,000	----	685,000	----	----------	----	----------
South Atlantic-----	----	----------	----	3,188,000	----	364,000	----	----------	----	895,000
East Gulf----------	----	----------	5	1,509,000	----	----------	----	3,500	----	69,500
Ohio Valley--------	----	----------	----	390,000	----	1,335,000	----	5,710,000	----	1,604,000
Upper Mississippi--	----	----------	----	c15,631,000	----	11,680,000	----	75,000	----	3,514,000
Lower Mississippi--	----	b3,250,000	----	d 4,730,000	----	500,000	----	273,000	----	70,000,000
Arkansas-----------	----	----------	----	2,825,000	----	1,265,200	----	----------	----	203,500
Red----------------	----	----------	----	18,000,000	----	----------	----	----------	----	----------
Texas--------------	11	5,000,000	----	----------	----	----------	----	----------	----	----------
Pacific------------	----	----------	----	2,622,000	----	5,410,000	----	1,711,000	2	1,300,000
Total	11	8,250,000	5	49,134,000	----	21,239,200	----	7,772,500	2	77,586,000

*Fiscal years (July 1 to June 30) through June 30, 1924 and calendar years thereafter.

a Large number

b Arkansas and Canadian Rivers

c $8,771,000 in States of Missouri and Kansas

d $3,420,000 in Oklahoma

LOSS OF LIFE AND PROPERTY IN THE UNITED STATES FROM FLOODS

Table F 2--Continued

BY DISTRICTS AND YEARS*, 1902-48

District	1912-13		1913-14		1914-15		1915-16		1916-17		1917-18	
	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property
Great Lakes	----	$----------	----	$----------	----	$----------	30	$ 3,172,000	----	$----------	----	$ 216,000
North Atlantic	----	1,303,500	----	87,000	4	16,100	4	1,200,000	----	372,125	----	968,000
South Atlantic	----	264,000	----	24,950	4	45,143	----	----------	80	22,945,435	----	203,500
East Gulf	----	148,000	----	57,000	----	160,000	----	----------	----	----------	----	200,000
Ohio Valley	527	e156,331,000	----	1,641,753	----	112,250	----	1,500,000	----	1,526,900	----	3,417,000
Upper Mississippi	----	550,000	----	162,700	----	9,018,500	36	4,435,611	----	2,439,500	----	800,000
Lower Mississippi	----	12,081,451	----	f1,065,000	----	36,400	----	1,364,393	----	----------	----	115,000
Arkansas	----	----------	----	80,390	----	560,000	----	6,265,280	----	----------	----	1,500,000
Red	----	----------	----	----------	----	1,540,000	----	633,000	----	----------	----	21,000
Texas	----	----------	180	11,058,915	41	2,317,607	----	413,132	----	----------	----	157,500
Pacific	----	710,000	----	3,773,992	----	325,000	----	----------	----	46,125	----	269,000
Miscellaneous east of Rockies	----	----------	----	----------	----	----------	22	2,055,620	----	----------	----	----------
Miscellaneous west of Rockies	----	----------	----	----------	----	----------	26	5,084,934	----	----------	----	----------
Total	527	171,387,951	180	17,951,700	49	14,131,000	118	26,124,000	80	27,330,085	----	7,867,000

District	1918-19		1919-20		1920-21		1921-22		1922-23		1923-24	
	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property
Great Lakes	----	34,900	----	7,000	----	----------	----	----------	----	----------	----	----------
North Atlantic	----	100,915	----	400,000	----	30,000	----	4,000,000	1	4,060,000	5	8,067,400
South Atlantic	----	666,390	----	4,178,715	----	150,000	----	75,000	----	32,690	----	3,465
East Gulf	----	169,730	20	5,000,000	----	1,310,000	----	35,000	----	410,600	----	59,650
Ohio Valley	2	593,525	----	3,000,000	----	150,000	----	4,800,000	----	74,300	11	3,408,970
Upper Mississippi	----	171,000	22	4,000,000	----	----------	----	4,750,000	1	h 2,000,000	19	1,788,000
Lower Mississippi	----	50,000	----	3,000,000	----	g 445,000	----	8,085,750	----	290,000	----	----------
Arkansas	----	25,500	----	200,000	143	25,000,000	----	1,014,250	9	h24,859,500	2	15,968,410
Red	----	155,000	----	1,800,000	----	100,000	----	----------	----	----------	----	158,400
Texas	----	875,000	----	2,810,500	----	530,000	215	27,000,000	----	204,000	----	192,500
Pacific	----	322,040	----	375,000	----	932,000	----	2,300,000	----	297,150	----	46,739
Miscellaneous east of Rockies	----	----------	----	----------	----	----------	----	----------	3	1,705,000	----	----------
Miscellaneous west of Rockies	----	----------	----	----------	----	----------	----	----------	----	----------	9	120,000
Total	2	3,164,000	42	24,771,215	143	28,647,000	215	52,060,000	14	33,933,240	46	29,813,534

*Fiscal years (July 1 to June 30) through June 30, 1924 and calendar years thereafter.

e $115,150,715 loss and 467 deaths in State of Ohio

f $894,000 in Oklahoma

g $245,000 in Oklahoma

h Incomplete

LOSS OF LIFE AND PROPERTY IN THE UNITED STATES FROM FLOODS

Table F 2--Continued BY DISTRICTS AND YEARS*, 1902-48

District	July 1-Dec. 31, 1924		1925		1926		1927		1928	
	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property
Great Lakes--------	9	$ 1,000,000	----	$----------	----	$ 19,200	48	$ 15,750,000	----	$----------
North Atlantic-----	----	1,000,000	----	50,000	----	137,100	40	29,408,400	3	2,105,150
South Atlantic-----	----	562,510	----	2,999,175	----	----------	----	1,000	5	8,382,538
East Gulf----------	----	----------	2	615,025	----	37,170	8	254,700	----	2,428,500
Ohio Valley--------	----	8,000	----	33,000	2	5,523,577	94	15,639,620	4	10,279,150
Upper Mississippi--	----	j 3,000,000	14	3,982,500	1	5,435,500	----	19,611,863	----	1,173,915
Lower Mississippi--	----	----------	----	115,000	----	42,000	100	133,898,468	----	7,820,000
1 Missouri----------	----	----------	----	----------	6	1,434,252	1	4,879,750	2	6,714,960
Arkansas----------	----	----------	----	223,400	6	8,938,050	132	26,183,350	1	4,349,000
Red----------	----	----------	----	----------	1	154,900	----	100,908,300	----	153,000
i West Gulf----------	----	k 500,000	6	1,435,650	----	301,000	----	208,500	----	75,000
m Colorado----------	----	----------	----	----------	----	447,000	----	11,800	----	100,000
Pacific----------	----	66,700	14	468,285	----	---------	----	902,671	----	1,032,351
Miscellaneous east of Rockies-------	----	----------	----	----------	----	1,000,000	----	----------	----	----------
Total	9	6,137,210	36	9,922,035	16	23,469,749	423	347,658,422	15	44,613,564

District	1929		1930		1931		1932		1933	
	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property
Great Lakes--------	----	171,000	----	36,165	----	1,200	----	1,200	----	14,130
North Atlantic-----	----	245,000	----	---------	----	1,050,000	----	25,035	2	5,418,653
South Atlantic-----	8	n 10,195,680	----	---------	----	31,000	----	190,925	----	19,100
East Gulf----------	5	8,746,306	----	465,800	----	174,100	----	615,335	----	443,706
Ohio Valley--------	34	h 17,049,500	----	7,041,805	----	1,200	----	288,256	5	7,725,025
Upper Mississippi--	----	3,677,500	----	15,150	----	20,000	----	88,050	4	1,156,740
Lower Mississippi--	4	9,979,601	----	529,955	----	---------	----	1,840,510	----	6,932,770
Missouri----------	13	2,118,250	----	13,500	----	886,200	----	451,155	2	1,391,200
Arkansas----------	12	7,516,465	----	213,100	----	6,800	----	2,528,125	----	776,100
Red----------	1	100,450	14	3,615,800	----	19,475	----	515,809	----	37,800
West Gulf----------	----	8,124,250	----	924,350	----	2,000	11	3,521,695	----	1,160,300
Colorado----------	12	175,000	----	----------	----	3,000	----	12,550	----	----------
Pacific----------	----	----------	----	----------	----	560,000	----	216,590	20	11,603,950
Miscellaneous east of Rockies-------	----	----------	----	2,500,000	----	---------	----	----------	----	----------
Miscellaneous west of Rockies-------	----	----------	----	494,500	----	55,000	----	----------	----	----------
Total	89	68,099,002	14	15,850,125	----	2,809,975	11	10,295,235	33	36,679,474

*Fiscal years (July 1 to June 30) through June 30, 1924 and calendar years thereafter.

i Substituted for Texas district as used previously

j State of Illinois

k State of New Mexico

l Formerly included under Upper Mississippi

m Formerly included under Pacific

n Including damage from tropical disturbance during October

LOSS OF LIFE AND PROPERTY IN THE UNITED STATES FROM FLOODS

Table F 2--Continued BY DISTRICTS AND YEARS*, 1902-48

District	1934		1935		1936		1937		1938	
	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property
Great Lakes-------	----	$----------	----	$ 13,185,000	1	$ 8,500	----	$ 690,500	----	$ 239,950
North Atlantic----	----	142,150	52	16,340,633	24	146,034,550	----	2,689,576	8	37,068,225
South Atlantic----	----	240,450	----	76,850	2	2,390,925	----	989,715	----	454,800
East Gulf---------	----	12,525	----	719,675	----	1,240,495	----	357,580	----	1,654,877
Ohio-------------	2	928,125	5	8,535,700	82	122,295,790	65	413,936,876	8	4,480,780
Upper Mississippi-	12	1,022,850	----	1,505,745	----	313,400	3	1,127,205	2	3,659,300
Lower Mississippi-	----	----------	17	6,631,548	----	54,750	72	6,657,557	----	1,000
Missouri----------	6	1,905,860	125	38,959,091	----	109,400	2	1,367,960	71	4,333,135
Arkansas----------	----	17,750	4	8,344,515	6	816,950	----	1,557,950	----	2,202,606
Red---------------	22	640,250	8	2,751,695	----	16,400	----	24,850	----	754,830
West Gulf---------	----	422,400	20	29,522,022	24	8,376,490	----	1,830,100	6	6,003,159
Colorado----------	1	21,500	----	----------	----	----------	----	264,385	----	256,733
Pacific-----------	45	5,007,500	5	557,150	3	891,610	----	9,245,275	85	39,990,250
Total	88	10,361,360	236	127,129,624	142	282,549,260	142	440,739,529	180	101,099,645

District	1939		1940		1941		1942		1943	
	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property
Great Lakes-------	----	11,100	2	----------	----	----------	----	153,075	1	9,564,253
North Atlantic----	2	56,275	4	2,519,075	----	----------	35	22,320,900	4	818
South Atlantic----	----	454,340	12	5,033,925	----	88,850	----	607,960	----	152,274
East Gulf---------	1	6,679,900	----	5,496,483	----	23,850	2	155,350	----	773,390
Ohio-------------	80	3,772,791	28	8,077,275	----	1,122,150	16	16,546,182	44	31,415,643
Upper Mississippi-	----	227,750	----	199,315	----	3,018,180	1	5,592,056	16	42,097,371
Lower Mississippi-	----	1,448,100	----	----------	----	----------	----	475,000	----	829,200
Missouri----------	----	609,375	5	1,758,850	2	12,018,755	1	22,510,940	13	62,630,405
Arkansas----------	----	179,350	2	1,332,000	9	13,346,100	----	6,576,405	26	41,850,342
Red---------------	----	22,200	----	11,800	----	1,855,300	----	2,204,950	----	43,650
West Gulf---------	----	359,675	7	7,621,750	34	5,457,975	2	12,489,050	----	2,588,700
Colorado----------	----	12,950	----	180,000	2	1,061,500	----	2,850	----	310,000
Pacific-----------	----	----------	----	8,236,010	----	1,532,030	11	8,871,480	3	7,477,099
Total	83	13,833,806	60	40,466,483	47	39,524,690	69	98,506,198	107	199,733,145

*Fiscal years (July 1 to June 30) through June 30, 1924 and calendar years thereafter.

LOSS OF LIFE AND PROPERTY IN THE UNITED STATES FROM FLOODS

Table F 2--Continued

BY DISTRICTS AND YEARS*, 1902-48

District	1944		1945		1946		1947		1948	
	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property
Great Lakes--------	----	$ 129,900	----	$ 118,800	----	$ 250,600	1	$ 5.761,400	4	$ 20.269,800
North Atlantic----	----	----------	3	5,728,700	14	8,500,400	----.	198,000	4	12,466,800
South Atlantic----	----	1,926,500	3	1,006,800	----	172,300	----	944,200	1	1,372,200
East Gulf----------	----	2,660,200	----	267,500	----	2,962,800	2	654,100	----	3,121,800
Ohio---------------	----	806,000	27	52,887,100	----	10,913,500	5	7,812,400	16	16,871,100
Upper Mississippi-	7	27,030,800	----	9,288,400	4	8,642,300	27	87,936,900	----	2,904,800
Lower Mississippi-	----	1,550,000	----	3,601,300	----	4,407,000	1	2,555,300	----	5,390,300
Missouri-----------	13	44,615,700	4	34,402,500	----	8,305,200	18	163,175,800	1	31,489,300
Arkansas-----------	10	11,171,100	20	15,067,700	----	1,791,500	1	1,423,500	14	18,721,000
Red----------------	----	1,675,900	6	22,209,200	----	1,434,300	----	1,445,500	----	220,000
West Gulf----------	3	8,938,300	4	10,986,600	10	15,966,800	----	330,000	1	4,603,900
Colorado-----------	----	575,000	10	181,500	----	----------	----	3,000	----	1,100
Pacific------------	----	----------	14	9,530,400	----	7,367,000	----	88,000	37	111,825,600
Great Basin--------	----	----------	----	520,000	----	99,800	----	----------	----	----------
Total	33	101,079,400	91	165,797,500	28	70,813,500	55	272,328,100	82	229,960,400

*Fiscal years (July 1 to June 30) through June 30, 1924 and calendar years thereafter.

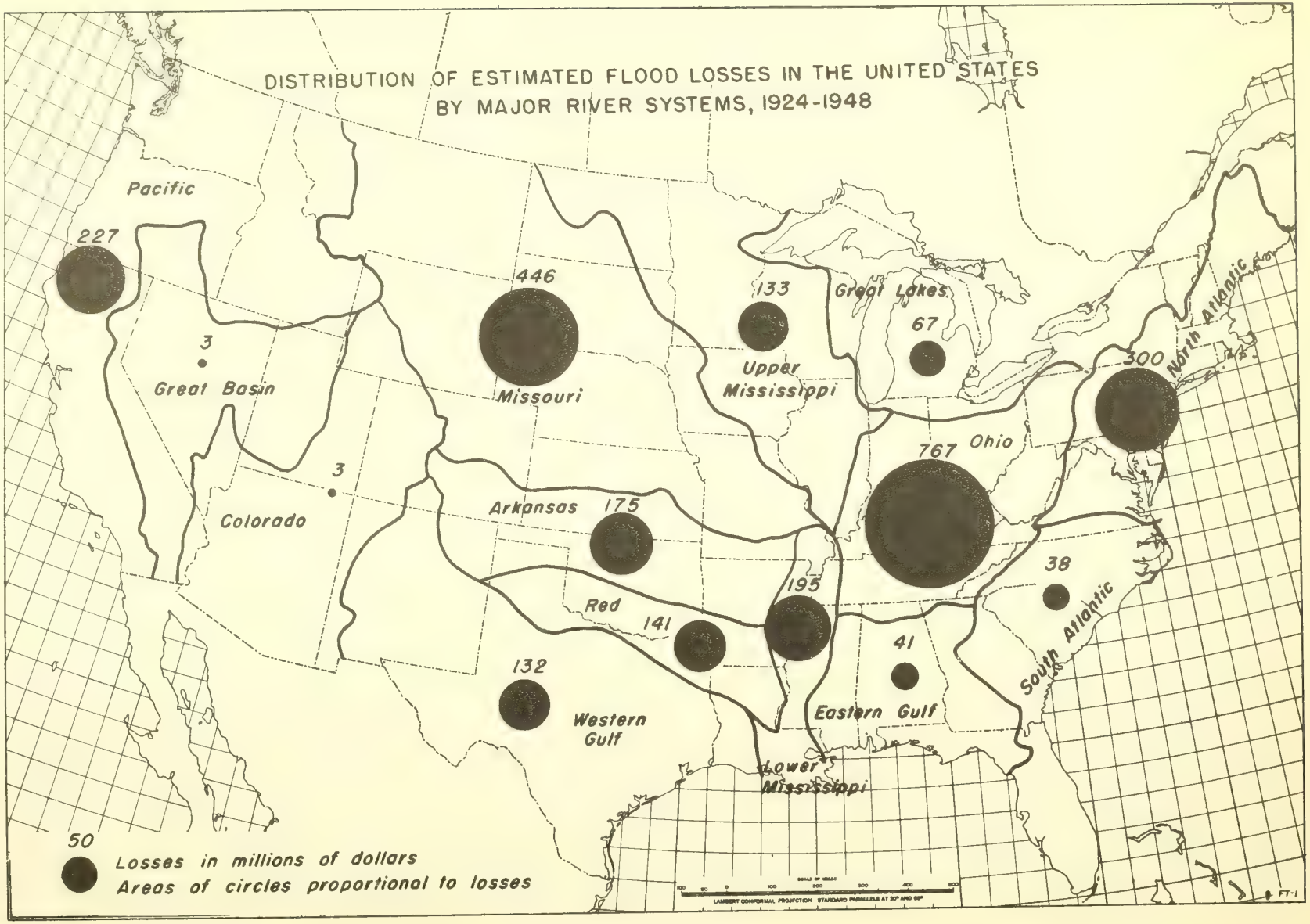
LOSS OF LIFE AND PROPERTY IN THE UNITED STATES FROM FLOODS, 1924-1948

Table F 3

BY MONTHS AND YEARS

Year	January		February		March		April		May		June		July		August		September		October		November		December		Total	
	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life	Property	Life
1924	-	0	41,000	0	7,[illegible],[illegible]	[illegible]	[illegible],000	[illegible]	[illegible],[illegible],000	[illegible]	2,549,500	11	80,[illegible]	0	[illegible],000,000	9	-	0	[illegible],510	0	66,700	0	5,000	0	[illegible],979,74[illegible]	27
1925	3,611,200	2	141,150	4	7,[illegible],500	6	[illegible],000	[illegible]	3,980,000	14	140,[illegible]	0	275,000	0	[illegible],[illegible],[illegible]	4	80,[illegible]	0	86,620	0	-	0	9,[illegible],035	36
1926	14,370	9	600,000	0	70,[illegible]	0	[illegible]	[illegible]	*	*	[illegible],[illegible]	0	7,000	0	7,[illegible],10[illegible]	[illegible]	[illegible],[illegible]	0	[illegible],[illegible]	0	[illegible],834,172	[illegible]	22,469,749	15
1927	2,928,830	8	1,866,845	0	107,[illegible]	0	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	1,135,100	[illegible]	[illegible],[illegible]	0	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	0	[illegible],[illegible]	0	[illegible],[illegible],[illegible]	[illegible]	147,[illegible]	0	347,[illegible],[illegible]	[illegible]
1928	3,903	0	[illegible],[illegible]	0	[illegible],[illegible],[illegible]	0	[illegible],[illegible],[illegible]	[illegible]	12,29[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	-	[illegible]	[illegible],[illegible]	[illegible]	40,000	0	41,[illegible],[illegible]	15
1929	121,600	0	2,[illegible],[illegible]	0	21,[illegible],[illegible]	47	[illegible],[illegible],[illegible]	0	[illegible],[illegible],[illegible]	[illegible]	19,[illegible],[illegible]	11	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	76,[illegible]	0	68,[illegible],[illegible]	29
1930	7,119,455	0	[illegible],[illegible]	0	14,[illegible]	0	[illegible]	0	[illegible],[illegible],[illegible]	14	3,[illegible],[illegible]	[illegible]	[illegible],[illegible]	0	[illegible],[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,[illegible],[illegible]	14
1931	-	0	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	0	1,[illegible],[illegible]	0	[illegible],[illegible]	[illegible]	[illegible]	[illegible]	1,[illegible]	0	[illegible],[illegible]	0	[illegible],[illegible]	0	[illegible],[illegible],[illegible]	0
1932	[illegible],[illegible],[illegible]	0	-	0	[illegible],[illegible]	0	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	0	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1933	348,[illegible]	0	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1934	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1935	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1936	341,[illegible]	0	2,[illegible],[illegible]	6	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1937	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1938	[illegible],[illegible]	0	[illegible],[illegible]	0	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1939	[illegible],[illegible]	0	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1940	[illegible],[illegible]	0	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1941	[illegible],[illegible]	0	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1942	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1943	3,[illegible],[illegible]	8	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1944	[illegible],[illegible]	0	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1945	[illegible],[illegible]	0	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1946	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1947	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
1948	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
Total	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]
Average	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible]	[illegible]	[illegible],[illegible],[illegible]	[illegible]

*Average


DISTRIBUTION OF ESTIMATED FLOOD LOSSES IN THE UNITED STATES
BY MAJOR RIVER SYSTEMS, 1924-1948
Pacific
227
3
Great Basin
3
Colorado
446
Missouri
133
Upper Mississippi
Great Lakes
67
300
North Atlantic
767
Ohio
Arkansas
175
Red
141
195
38
South Atlantic
41
Eastern Gulf
132
Western Gulf
Lower Mississippi
50
Losses in millions of dollars
Areas of circles proportional to losses
LAMBERT CONFORMAL PROJECTION STANDARD PARALLELS AT 33° AND 45°
FT-1

LOSSES IN INDIVIDUAL GREAT FLOODS IN THE UNITED STATES SINCE JULY 1902

Table F 4

Date	Locality	Lives ø	Property
May-June 1903-----	Kansas, lower Missouri, and upper Mississippi Rivers----------	100	$40,000,000
July 1908---------	Missouri River----------	---	9,339,000
	Upper Mississippi River----------	---	5,600,000
	Red River----------	---	16,200,000
July 1909---------	Missouri River east of Kansas City---	---	5,500,000
March 1912--------	Lower Mississippi River----------	---	70,000,000
March 1913--------	Ohio River and tributaries----------	467	147,000,000
	Mississippi River----------	---	7,000,000
December 1913-----	Texas rivers----------	177	9,000,000
June 1915---------	Kansas River----------	---	5,950,000
August 1916-------	Rivers of the Carolinas----------	---	21,700,000
June 1921---------	Arkansas River in State of Colorado	120	25,000,000
September 1921----	Texas rivers----------	215	19,000,000
April-May, 1922#--	Upper Mississippi River----------	---	4,700,000
	Ohio Valley----------	---	4,000,000
	Lower Mississippi River----------	---	7,500,000
October 1923------	Lower Arkansas, including the State of Oklahoma----------	---	15,000,000
March 1924--------	Potomac River----------	---	6,000,000
Spring of 1927----	Mississippi Valley----------	313	284,117,631
August 1927-------	Arkansas River and tributaries-------	---	3,440,000
November 1927-----	New England rivers----------	88	45,577,700
June 1928---------	Ohio Valley----------	---	7,535,500
August 1928-------	South Atlantic drainage----------	---	4,400,000
September 1928----	South Atlantic drainage----------	---	4,000,000
March-June 1929---	East Gulf Drainage----------	---	8,000,000
	Ohio Valley----------	---	16,500,000
	Missouri Valley----------	---	2,000,000
	Upper Mississippi Valley----------	---	3,600,000
	Lower Mississippi Valley----------	---	10,000,000
	Arkansas-White Valley----------	---	2,700,000
	Rivers in Texas----------	---	8,000,000
July 1929---------	Rivers in central Kansas----------	---	4,000,000
October 1929------	Rivers in Southeastern States--------	---	## 9,000,000
January 1930------	White-Wabash Rivers----------	---	7,000,000
May 1930----------	Red River and tributaries----------	---	3,000,000
Sept.-Oct. 1932---	Lower Rio Grande----------	---	2,500,000
March 1933--------	Ohio River----------	---	2,000,000
December 1933-----	Columbia River and tributaries-------	---	10,000,000
May 1935----------	Rivers in eastern Colorado----------	---	6,000,000
May-June 1935-----	Republican and Kansas Rivers---------	110	18,000,000
	Lower Missouri River----------	---	10,000,000
July 1935---------	Upper Susquehanna tributaries--------	52	26,000,000
December 1935-----	Houston, Texas, area----------	---	2,500,000
March-April 1936--	Rivers in Eastern United States------	107	270,000,000
July 1936---------	Rivers in central Texas----------	---	2,000,000
September 1936----	Rivers in central and northern Texas-	---	5,000,000
Jan.-Feb. 1937----	Ohio and lower Mississippi River----- basins----------	137	417,685,000

ø Loss of life carried only where considerable.
\# No lives lost in Mississippi Valley floods of 1922.
Partly storm damage caused by tropical disturbance.

Table F 4--Continued

Date	Locality	Lives ø	Property
December 1937-----	Sacramento Valley----------	---	7,100,000
March 1938--------	Streams in southern California-------	79	24,500,000
September 1938----	Rivers in New England----------	---	37,000,000
July 1939---------	Licking and Kentucky Rivers----------	78	1,715,000
Feb.-Mar. 1940----	Sacramento Valley----------	---	6,700,000
August 1940-------	Rivers in southern Virginia, the Carolinas, and eastern Tennessee-------	40	12,000,000
Oct.-Nov. 1941----	Arkansas River Basin----------	---	8,500,000
April-June 1942---	Upper Mississippi, Missouri, Arkansas, Red, and Trinity River Basins------	---	44,350,000
May 1942----------	Delaware & Susquehanna River Basins--	33	13,000,000
July 1942---------	Upper Alleghaney River and Sennemahoning Creek Basins----------	15	10,000,000
Nov.-Dec. 1942----	Willamette River----------	10	6,900,000
Dec.1942-Jan. 1943	Ohio River----------	---	10,540,000
Apr.-June 1943----	Maumee, Wabash, upper Mississippi,--- Missouri, White, and Arkansas River Basins----------	60	172,500,000
August 1943-------	Little Kanawha----------	23	1,300,000
Apr.-June 1944----	Upper Mississippi, Missouri, Arkansas, Red, lower Mississippi Basins and east Texas Streams----------	17	82,000,000
Feb.-Mar. 1945----	Ohio River----------	18	30,000,000
Feb.-Apr. 1945----	Trinity and Sabine Rivers----------	---	9,000,000
Mar.-July 1945----	Lower Mississippi River----------	---	9,500,000
July 1945---------	Lake Section of Rensselaer County,-- New York----------	---	3,500,000
December 1945-----	Willamette River----------	9	6,000,000
January 1946------	Cumberland River----------	---	3,925,000
	Tennessee River and tributaries------	---	4,500,000
May-June 1946-----	Trinity River----------	---	4,150,000
September 1946----	San Antonio and Nueces Rivers--------	9	6,050,000
December 1946-----	Willamette River----------	---	5,525,000
April 1947--------	Allegheny River----------	---	4,319,000
May-July 1947-----	Rivers in Middle West in the lower--- Missouri and middle Mississippi --- River Basins----------	29	235,000,000
June 1947---------	East Creek at Rutland, Vt.----------	---	2,000,000
March 1948--------	Susquehanna River and tributaries----	---	4,300,000
Apr.-May 1948-----	Red River of North and tributaries---	---	18,700,000
May-June 1948-----	Columbia Basin----------	37	112,000,000
June-July 1948----	Arkansas River and minor tributaries-	---	14,500,000
December 1948-----	Housatonic River----------	---	4,200,000
April 1949--------	Rio Grande----------	---	3,300,000
May 1949----------	Trinity River----------	10	14,000,000
June 1949---------	Shenandoah and Potomac Rivers--------	11	8,850,000
Apr.-May 1950-----	Red River of North----------	9	* 33,000,000
June 1950---------	Central West Virginia----------	31	4,020,000
Nov.-Dec. 1950----	Central Valleys of California and---- Western Nevada----------	---	* 23,000,000

ø Loss of life carried only where considerable.
* Preliminary.

RADIOSONDE DATA

Average monthly values

YEAR 1950

Standard pressure surface (mb)	Albany, N. Y. (1,006 mb.)				Albuquerque, N. Mex. (837 mb.)				Atlanta, Ga.[1]				Big Springs, Tex. (925 mb.)				Bismarck, N. Dak. (956 mb.)				Boise, Id. (915 mb.)				Brownsville, Tex. (1,014 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	360	86	7.0	79	365	1,620	15.8	31					365	784	17.6	51	351	505	2.7	72	365	868	11.7	57	364	6	22.8	81
1,000--	360	138	7.2	72	365	77			365	159			365	110			351	133			365	114			364	126	22.9	78
950----	360	564	6.7	68	365	534			365	599	16.0	64	365	556			351	556	2.7	68	365	553		46	364	577	20.5	74
900----	360	1,003	4.6	67	365	1,004			365	1,055	13.6	64	365	1,022	18.8	45	351	993	3.5	61	365	1,006	13.0	44	364	1,039	18.9	62
850----	360	1,467	2.5	65	365	1,490			365	1,535	11.1	62	365	1,511	16.9	42	351	1,455	2.3	58	365	1,484	10.4		364	1,529	17.0	53
800----	360	1,955	0.3	62	365	2,006	15.0		365	2,039	8.7	57	365	2,025	14.0	41	351	1,943	0.3	57	365	1,985	6.8	49	364	2,044	14.5	46
750----	359	2,477	- 1.8	57	365	2,556	11.1	29	365	2,577	6.1	52	365	2,572	10.5	40	351	2,468	- 2.1	55	365	2,517	3.0	52	364	2,592	11.7	42
700----	359	3,018	- 4.1	51	365	3,120	6.7	33	365	3,133	3.2	49	365	3,137	6.8		351	3,004	- 5.0	54	365	3,066	- 1.0	53	364	3,161	8.4	
650----	357	3,604	- 7.0	48	365	3,729	1.9		365	3,735	- 0.1	45	364	3,745	2.8		351	3,593	- 8.4	51	365	3,659	- 5.0	51	362	3,774	4.6	
600----	357	4,220	-10.3		365	4,363	- 2.9		363	4,367	- 3.8		363	4,385	- 1.7		350	4,200	-12.0	49	363	4,278	- 9.0	49	357	4,417	0.5	
550----	354	4,888	-14.3	41	362	5,050	- 7.7		359	5,052	- 7.9		359	5,074	- 6.3		348	4,869	-16.0	46	359	4,951	-13.3	46	352	5,112	- 3.8	
500----	353	5,601	-18.8		361	5,781	-12.8		358	5,784	-12.6		357	5,811	-11.2		345	5,573	-20.7	45	357	5,666	-18.0		349	5,856	- 8.6	
450----	350	6,382	-24.2		359	6,582	-18.3		357	6,586	-17.9		355	6,615	-16.8		340	6,354	-26.1		352	6,447	-23.3		341	6,669	-14.1	
400----	344	7,228	-30.1		357	7,446	-24.6		357	7,450	-24.1		347	7,487	-23.2		338	7,186	-32.2		348	7,294	-29.5		340	7,548	-20.5	
350----	340	8,164	-37.1		355	8,404	-31.7		356	8,410	-31.1		345	8,450	-30.6		338	8,115	-39.1		343	8,232	-36.7		337	8,522	-27.6	
300----	332	9,215	-44.2		353	9,475	-40.1		351	9,485	-39.1		341	9,527	-38.7		334	9,154	-46.2		326	9,287	-44.2		330	9,612	-36.0	
250----	324	10,418	-51.5		341	10,694	-49.2		343	10,710	-48.2		332	10,755	-48.0		328	10,348	-52.4		308	10,486	-51.6		324	10,852	-45.6	
200----	296	11,848	-56.6		323	12,129	-57.4		328	12,147	-57.0		323	12,196	-57.3		303	11,777	-54.6		282	11,915	-56.3		309	12,305	-56.0	
175----	277	12,693	-57.2		311	12,966	-60.1		316	12,985	-60.1		299	13,033	-60.9		290	12,630	-54.3		260	12,761	-56.3		296	13,142	-60.8	
150----	247	13,672	-58.1		289	13,924	-62.5		300	13,937	-62.4		268	13,983	-64.3		263	13,617	-54.6		231	13,734	-56.0		270	14,092	-65.3	
125----	212	14,823	-59.1		248	15,043	-64.9		269	15,057	-65.0		220	15,088	-67.1		225	14,777	-55.9						242	15,194	-69.0	
100----	149	16,222	-59.5		200	16,398	-66.5		223	16,411	-66.5		177	16,429	-68.2													
80-----																												

Standard pressure surface (mb)	Buffalo, N. Y. (990 mb.)				Camaguey, Cuba (1,003 mb.)				Caribou, Maine (992 mb.)				Charleston, S. C. (1,017 mb.)				Ciudad Victoria, Mex. (974 mb.)				Columbia, Mo. (988 mb.)				Dodge City, Kans. (925 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	359	221	7.7	75	279	122	21.4		365	191	2.7	78	365	13	16.3	84	342	335	26.5	52	365	238	11.2	71	363	792	11.3	60
1,000--	359	137			279	149	21.6		365	124			365	159	18.2	72	342	102			365	136			363	125		
950----	359	565	7.3	68	279	600	20.7		365	545	3.5	65	365	603	16.9	64	342	558	24.9	53	365	571	11.6	61	363	563		
900----	359	1,005	5.1	67	279	1,061	18.4		365	979	1.8	63	365	1,059	14.5	62	342	1,028	21.2	57	365	1,018	9.7	60	363	1,017	13.0	53
850----	359	1,470	2.8	66	279	1,550	15.8		364	1,439	0.4	63	365	1,541	11.8	59	342	1,520	17.4	62	365	1,492	8.0	56	363	1,497	11.6	49
800----	359	1,958	0.6	60	279	2,063	12.9		364	1,922	2.3	61	365	2,046	9.2	55	342	2,035	14.0	64	365	1,990	6.1	51	363	2,002	9.7	46
750----	359	2,481	- 1.7	55	279	2,606	10.1		364	2,439	4.4	57	365	2,586	6.6	48	342	2,584	11.0	60	365	2,524	3.8	48	363	2,539	2.9	43
700----	359	3,022	- 4.0	51	278	3,175	7.2		364	2,974	6.8	52	365	3,143	3.8	44	341	3,151	7.8	54	365	3,075	0.9	46	363	3,099	3.5	41
650----	353	3,613	- 6.7	47	271	3,787	4.0		363	3,557	- 9.5	49	364	3,747	0.6		332	3,764	4.1	49	365	3,674	- 2.3	43	363	3,699	- 0.5	41
600----	345	4,226	-10.0		268	4,428	0.5		363	4,165	-12.6		363	4,380	- 3.2		325	4,406	0.1		363	4,299	- 6.0	41	361	4,332	- 4.7	39
550----	338	4,894	-13.9		266	5,124	- 3.6		362	4,829	-16.5	44	363	5,068	- 7.4		315	5,100	- 4.1		361	4,979	-10.2	38	360	5,011	- 9.5	
500----	331	5,609	-18.4		262	5,868	- 8.3		362	5,535	-20.8	43	362	5,799	-12.1		314	5,844	- 8.7		360	5,703	-14.9		359	5,740	-14.4	
450----	327	6,390	-23.6		260	6,685	-13.6		362	6,310	-25.9		360	6,603	-17.5		308	6,659	-14.1		360	6,496	-20.4		358	6,531	-20.0	
400----	322	7,239	-29.7		259	7,564	-19.9		360	7,150	-31.6		360	7,407	-23.7		306	7,539	-20.6		360	7,353	-26.6		357	7,393	-26.4	
350----	309	8,180	-36.5		256	8,542	-26.9		358	8,082	-37.8		356	8,432	-30.6		296	8,512	-27.9		360	8,304	-33.6		352	8,345	-33.4	
300----	301	9,235	-43.9		256	9,635	-35.2		355	9,130	-44.4		354	9,508	-38.8		280	9,601	-36.2		360	9,367	-41.4		350	9,408	-41.4	
250----	277	10,441	-51.1		255	10,881	-44.9		348	10,337	-50.1		349	10,734	-48.0		269	10,841	-46.0		357	10,583	-49.6		349	10,622	-49.8	
200----					252	12,336	-56.1		326	11,782	-53.8		341	12,176	-56.7		252	12,291	-57.0		346	12,021	-56.3		343	12,056	-57.1	
175----						13,174	-61.8		311	12,639	-53.9		323	13,016	-60.2		244	13,126	-62.0		336	12,866	-58.0		326	12,897	-59.0	
150----						14,115	-67.3		277	13,634	-53.9		300	13,972	-62.6		224	14,069	-66.6		309	13,832	-59.3		297	13,857	-60.6	
125----									230	14,799	-54.3		248	15,094	-65.0		195	15,158	-70.6		264	14,967	-61.0		258	14,986	-62.6	
100----									176	16,226	-54.6										218	16,342	-61.8		203	16,351	-63.7	
80-----																												

Standard pressure surface (mb)	El Paso, Texas (881 mb.)				Ely, Nev. (809 mb.)				Glasgow, Mont. (939 mb.)				Grand Junction, Colo. (852 mb.)				Great Falls, Mont. (886 mb.)				Greensboro, N. C. (987 mb.)				Hatteras, N. C. (1018 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	364	1,195	19.9	32	365	1,908	8.4	48	365	648	3.5	65	365	1,474	12.1	43	365	1,128	6.1	57	360	273	12.5	79	364	3	16.9	82
1,000--	364	80			365	106			365	130			365	98			365	117			360	159			364	156	16.9	75
950----	364	539			365	550			365	555			365	546			365	551			360	596	13.9	63	364	597	14.8	68
900----	364	1,011			365	1,011			365	993	4.7	55	365	1,006			365	1,000			360	1,048	11.8	61	364	1,049	12.4	64
850----	364	1,502	20.0		365	1,490			365	1,458	3.2	53	365	1,487	12.6		365	1,465	5.5	51	360	1,525	9.2	62	364	1,527	9.9	60
800----	364	2,020	16.1		365	1,998	10.8	39	365	1,947	0.6	54	365	1,998	12.2	34	365	1,958	2.5	52	360	2,025	6.6	60	364	2,029	7.4	55
750----	364	2,570	12.1	33	365	2,536	7.5	38	365	2,468	- 2.4	55	365	2,539	8.4	36	365	2,482	- 0.8	55	360	2,559	4.2	54	364	2,564	5.0	50
700----	364	3,138	7.7	35	365	3,096	3.1	41	365	3,007	- 5.7	55	365	3,100	4.0	39	365	3,024	- 4.6	57	360	3,112	1.4	50	363	3,119	2.1	48
650----	364	3,747	3.1		365	3,695	- 1.4	44	365	3,591	- 9.2	53	365	3,701	- 0.7	43	365	3,609	- 8.5	55	360	3,711	- 1.9	46	359	3,718	- 1.2	46
600----	360	4,386	- 1.6		365	4,325	- 5.9	47	365	4,200	-13.0	50	365	4,331	- 5.5	46	365	4,219	-12.4	52	358	4,338	- 5.3		358	4,348	- 4.7	42
550----	358	5,077	- 6.4		365	5,003	-10.7	47	362	4,862	-17.2	47	363	5,011	-10.5	47	365	4,882	-16.7	49	354	5,019	- 9.3		352	5,031	- 8.7	39
500----	350	5,812	-11.5		364	5,727	-15.8	46	362	5,566	-21.9	45	362	5,734	-15.6	45	364	5,588	-21.5	46	350	5,747	-13.9		352	5,760	-13.3	
450----	344	6,617	-16.9		364	6,517	-21.4	42	359	6,336	-27.3		361	6,525	-21.1		362	6,359	-27.1		346	6,543	-19.3		348	6,560	-18.7	
400----	336	7,486	-23.2		364	7,371	-27.6		359	7,171	-33.3		358	7,380	-27.1		361	7,194	-33.3		343	7,404	-25.5		347	7,423	-24.8	
350----	321	8,449	-30.4		363	8,318	-34.6		356	8,096	-39.9		356	8,328	-34.1		355	8,119	-39.9		340	8,359	-32.4		344	8,380	-31.7	
300----	306	9,525	-38.5		359	9,378	-42.5		354	9,132	-47.0		353	9,389	-41.9		341	9,158	-46.9		335	9,428	-40.2		341	9,451	-39.7	
250----	274	10,754	-47.8		356	10,587	-51.0		344	10,323	-53.0		344	10,599	-50.2		309	10,356	-53.0		331	10,647	-49.0		337	10,673	-48.4	
200----	237	12,195	-57.1		343	12,014	-57.2		324	11,752	-55.1		334	12,031	-56.6		263	11,775	-55.5		316	12,087	-57.0		327	12,113	-56.6	
175----	207	13,033	-60.6		319	12,853	-58.3		299	12,606	-54.8		321	12,877	-57.9		231	12,618	-54.7		303	12,925	-59.6		314	12,956	-59.3	
150----	180	13,985	-64.2		300	13,818	-59.7		274	13,593	-54.8		292	13,846	-59.1		205	13,601	-54.9		273	13,887	-61.4		290	13,918	-61.4	
125----					264	14,955	-61.4		246	14,757	-55.8		249	14,986	-60.6						221	15,018	-62.3		228	15,052	-63.2	
100----					214	16,394	-62.0		204	16,175	-56.8		205	16,369	-62.4													
80-----																												

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

[1] Altitude changed from 300 meters to 307 meters on August 29, 1950.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

Standard pressure surface (mb)	Internat. Falls, Minn. (972 mb.)				Joliet, Ill. (995 mb.)				Lake Charles, La. (1016 mb.)				Lander, Wyo. (828 mb.)				Las Vegas, Nev. (935 mb.)				Little Rock, Ark. (1008 mb.)				Mazatlan, Mexico (1009 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	359	360	0.0	76	362	179	7.4	79	365	5	18.9	85	363	1,696	6.9	51	365	660	20.5	22	364	79	15.4	75	349	14	25.5	76
1,000--	359	131			362	136			365	143	19.9	76	363	106			365	76			364	142	15.9	69	349	92	24.9	73
950----	359	548	1.5	68	362	564	7.9	66	365	589	18.2	71	363	547			365	527			364	583	15.3	65	349	552	24.3	53
900----	359	980	0.1	66	362	1,006	6.4	63	365	1,047	15.9	67	363	1,002			365	996	22.0		364	1,036	13.4	65	349	1,015	22.5	
850----	359	1,437	- 1.2	65	362	1,474	4.7	60	365	1,532	13.7	61	363	1,475			365	1,488	18.2		364	1,516	11.3	61	349	1,510	19.7	
800----	359	1,920	- 2.7	61	362	1,967	2.9	56	365	2,041	11.4	54	363	1,977	8.1	43	365	2,003	14.1		364	2,021	9.3	55	349	2,030	16.6	
750----	359	2,438	- 4.7	57	362	2,493	0.5	53	365	2,585	8.8	47	363	2,511	4.6	43	365	2,546	10.1	28	364	2,560	6.6	52	349	2,582	13.2	
700----	359	2,970	- 7.2	54	362	3,039	- 2.2	49	365	3,146	5.8	43	363	3,064	0.6	46	365	3,111	5.6		364	3,117	3.5	48	348	3,153	9.4	
650----	357	3,553	-10.2	53	361	3,631	- 5.4	46	365	3,754	2.3	40	363	3,660	- 3.8	48	365	3,716	1.3		363	3,720	0.1	45	344	3,768	5.2	
600----	357	4,158	-13.5	49	359	4,248	- 8.9		364	4,391	- 1.7		363	4,282	- 8.1	48	363	4,351	- 3.3		360	4,353	- 3.7	41	336	4,412	0.7	
550----	357	4,819	-17.5	48	358	4,921	-12.8		364	5,082	- 6.0		363	4,956	-12.8	46	362	5,036	- 8.0		359	5,038	- 7.9		322	5,106	- 3.8	
500----	354	5,522	-21.9	46	357	5,639	-17.4		362	5,817	-10.8		363	5,671	-17.8	43	360	5,768	-13.2		357	5,769	-12.5		304	5,851	- 8.5	
450----	352	6,294	-27.3	45	354	6,426	-22.8		360	6,623	-16.4		359	6,457	-23.5		358	6,565	-18.9		356	6,570	-17.9		297	6,667	-14.0	
400----	347	7,127	-33.3		351	7,274	-28.8		354	7,494	-22.8		359	7,302	-29.6		356	7,430	-25.4		354	7,436	-24.2		287	7,544	-20.2	
350----	345	8,051	-39.8		347	8,216	-35.7		354	8,459	-29.9		359	8,240	-36.8		352	8,384	-32.8		351	8,395	-31.5		272	8,522	-27.4	
300----	330	9,089	-46.5		338	9,271	-43.2		351	9,538	-38.1		355	9,289	-44.6		350	9,450	-41.0		344	9,467	-39.7		262	9,609	-35.6	
250----	310	10,285	-52.0		332	10,480	-50.7		348	10,768	-47.6		353	10,489	-52.0		347	10,667	-49.9		334	10,690	-48.8		249	10,850	-45.4	
200----	280	11,720	-53.7		307	11,914	-56.0		336	12,210	-57.3		339	11,917	-56.6		340	12,098	-57.6		319	12,127	-57.0		232	12,301	-56.6	
175----	249	12,578	-53.1		288	12,760	-57.0		329	13,046	-61.3		327	12,760	-56.9		329	12,938	-59.7		304	12,967	-59.9		223	13,135	-62.1	
150----	199	13,579	-53.2		259	13,730	-57.7		321	13,995	-64.9		309	13,734	-57.4		316	13,897	-61.4		277	13,925	-62.5		210	14,076	-67.0	
125----					221	14,875	-59.0		295	15,097	-68.1		282	14,883	-58.5		289	15,020	-63.6		230	15,043	-64.7		167	15,165	-71.5	
100----					159	16,265	-59.8		255	16,429	-69.8		235	16,280	-59.6		254	16,384	-65.4									
80-----									180	17,762	-68.3		177	17,680	-59.6		196	17,750	-64.5									

Standard pressure surface (mb)	Medford, Ore. (969 mb.)				Merida, Mexico (1012 mb.)				Miami, Fla. (1018 mb.)				Nantucket, Mass. (1015 mb.)				Nashville, Tenn. (997 mb.)				North Platte, Nebr. (917 mb.)				Oakland, Calif. (1016 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	365	401	13.9	64	362	27	25.5	73	364	4	22.9	78	357	14	8.8	85	362	177	13.9	76	360	849	7.9	70	365	6	13.8	74
1,000--	365	132			362	129	25.0	73	364	158	22.9	74	357	140	9.7	77	362	149			360	122			365	139	13.5	72
950----	362	371	14.2	57	362	580	22.6	69	364	606	20.0	73	357	567	9.1	67	362	585	13.6	64	360	556			365	577	14.2	60
900----	365	1,022	11.7	55	362	1,048	19.6	70	364	1,069	17.1	70	357	1,013	7.2	62	362	1,038	11.4	64	360	1,004	9.7	58	365	1,028	14.0	46
850----	365	1,497	8.5	57	362	1,539	16.5	71	364	1,555	14.4	65	357	1,482	5.3	58	362	1,515	9.1	61	360	1,479	8.7	52	365	1,508	12.1	
800----	365	1,995	5.2	58	362	2,053	13.2	68	364	2,065	12.0	56	357	1,975	3.3	55	362	2,016	6.9	56	360	1,979	6.7	50	365	2,014	9.4	
750----	365	2,525	2.1	56	362	2,599	10.6	57	364	2,610	9.3	50	357	2,502	1.0	51	362	2,550	4.4	52	360	2,511	3.9	49	365	2,555	6.3	
700----	365	3,074	- 1.0	50	359	3,166	8.1		362	3,173	6.5		357	3,049	-1.6	47	362	3,103	1.6	49	360	3,063	0.4	48	365	3,108	3.0	34
650----	365	3,666	- 4.4	45	354	3,780	5.0		361	3,783	3.3		356	3,641	-4.6	44	358	3,702	-1.6	46	360	3,662	-3.5	48	365	3,709	-0.6	
600----	363	4,288	- 8.2		349	4,423	1.4		358	4,423	- 0.3		356	4,262	-8.0	42	357	4,330	-5.2	42	358	4,282	-7.6	47	363	4,339	-4.7	
550----	362	4,961	-12.3		345	5,120	- 2.9		357	5,117	- 4.4		356	4,935	-12.0	40	354	5,012	-9.3	39	353	4,957	-12.2	47	361	5,021	-9.1	
500----	361	5,680	-17.1		340	5,867	- 7.7		356	5,859	- 9.0		353	5,657	-16.6		348	5,739	-13.9		350	5,676	-17.0	44	361	5,749	-14.2	
450----	355	6,465	-22.6		336	6,685	-13.2		355	6,671	-14.4		351	6,443	-21.9		346	6,535	-19.2		347	6,463	-22.4	41	360	6,544	-20.0	
400----	352	7,316	-28.9		330	7,566	-19.7		354	7,550	-20.6		350	7,296	-27.9		346	7,398	-25.4		344	7,312	-28.6		360	7,402	-26.6	
350----	348	8,258	-36.0		326	8,543	-27.0		352	8,523	-27.7		346	8,241	-34.8		345	8,352	-32.5		339	8,257	-35.3		353	8,353	-34.0	
300----	343	9,312	-43.7		321	9,635	-35.4		346	9,612	-36.0		340	9,300	-42.3		341	9,421	-40.5		331	9,312	-43.1		349	9,414	-42.1	
250----	335	10,517	-51.8		314	10,877	-45.4		339	10,853	-45.5		330	10,517	-50.0		334	10,638	-49.3		321	10,519	-50.8		344	10,628	-50.7	
200----	298	11,944	-57.3		298	12,326	-56.9		329	12,306	-56.0		303	11,957	-56.3		317	12,074	-57.1		304	11,951	-56.4		324	12,055	-57.6	
175----	270	12,789	-57.8		287	13,161	-62.8		312	13,145	-60.9		288	12,804	-57.7		294	12,914	-59.6		289	12,798	-57.5		303	12,893	-59.0	
150----					266	14,095	-68.4		290	14,093	-65.3		264	13,773	-58.6		263	13,873	-61.5		271	13,769	-58.5		271	13,866	-60.2	
125----					196	15,172	-73.0		241	15,191	-69.0		213	14,912	-59.2		221	14,996	-63.6		239	14,911	-60.0		235	14,992	-61.7	
100----									198	16,512	-71.2										203	16,296	-61.1					
80-----																												

Standard pressure surface (mb)	Oklahoma City, Okla. (970 mb.)				Omaha, Nebr. (980 mb.)				Phoenix, Ariz. (972 mb.)				Pittsburgh, Pa. (972 mb.)				Portland, Maine (1014 mb.)				Rapid City, S. Dak.[2]				St. Cloud, Minn. (978 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	365	391	14.2	69	361	308	9.4	70	364	338	22.1	36	363	382	9.4	73	362	20	5.7	82					365	317	3.3	73
1,000--	365	129			361	137			364	86			363	146			362	135	7.2	69	357	125			365	130		
950----	365	569	15.4	60	361	568	9.3	59	364	540	25.9		363	580	9.7	68	362	560	6.6	62	357	557			365	555	4.4	65
900----	365	1,024	13.9	58	361	1,012	7.8	59	364	1,011	22.7		363	1,023	7 6	65	362	1,000	4.6	60	357	1,001	5.3	61	365	989	3.3	63
850----	365	1,505	12.6	53	361	1,083	6.4	57	364	1,504	18.8		363	1,492	5.2	64	362	1,464	2.5	59	357	1,471	6.6	51	365	1,452	2.1	59
800----	365	2,013	10.6	46	361	1,979	0.7	52	364	2,020	14.7	29	363	1,985	2.8	59	362	1,952	0.5	57	357	1,967	4.4	51	365	1,940	0.4	55
750----	365	2,554	7.9	42	361	2,509	2.4	48	364	2,567	10.6		363	2,514	0.6	55	362	2,475	-1.6	51	357	2,497	1.6	51	365	2,463	- 1.7	52
700----	365	3,113	4.6	39	361	3,058	-0.5	47	364	3,131	6.4		362	3,057	-2.0	51	362	3,015	-4.2	48	357	3,043	-1.7	52	365	3,003	- 4.4	49
650----	361	3,718	0.8	39	361	3,654	-4.0	44	364	3,740	2.3		362	3,650	-4.9	47	360	3,602	-7.2	45	357	3,635	-5.3	50	365	3,590	- 7.5	46
600----	361	4,351	-3.3		360	4,275	-7.7	41	364	4,376	-2.0		360	4,269	-8.2		357	4,216	-10.6	43	355	4,253	-9.3	47	365	4,203	-11.0	44
550----	360	5,037	-7.7		360	4,951	-12.0		364	5,063	-6.6		357	4,945	-12.0		354	4,883	-14.4		353	4,925	-13.7	45	364	4,870	-14.9	43
500----	360	5,769	-12.6		359	5,671	-16.7		361	5,799	-11.8		352	5,663	-16.6		352	5,596	-19.0		349	5,639	-18.4	43	364	5,581	-19.6	42
450----	357	6,570	-18.1		355	6,459	-22.3		361	6,602	-17.5		350	6,451	-21.9		348	6,375	-24.3		349	6,420	-23.9	41	362	6,360	-24.9	
400----	353	7,435	-24.5		352	7,310	-28.5		358	7,469	-24.0		347	7,304	-27.9		343	7,222	-30.2		345	7,266	-30.1		357	7,202	-30.9	
350----	348	8,393	-31.8		344	8,253	-35.4		357	8,428	-31.4		340	8,250	-34.8		333	8,153	-37.1		342	8,204	-36.9		353	8,134	-37.6	
300----	345	9,465	-39.9		341	9,309	-43.2		354	9,501	-39.4		335	9,310	-42.4		320	9,203	-44.4		334	9,252	-44.4		352	9,182	-44.6	
250----	340	10,685	-48.9		340	10,517	-51.0		347	10,724	-48.5		328	10,520	-50.3		293	10,404	-51.2		328	10,454	-51.6		347	10,385	-50.9	
200----	328	12,123	-57.4		334	11,948	-56.5		335	12,161	-57.2		317	11,955	-56.3		249	11,830	-55.6		307	11,884	-55.6		331	11,824	-54.1	
175----	311	12,961	-60.1		314	12,792	-57.4		308	13,002	-60.1		308	12,800	-57.4		219	12,677	-56.1		284	12,733	-55.5		318	12,683	-54.1	
150----	288	13,917	-62.4		293	13,765	-58.2		275	13,958	-62.7		287	13,773	-58.9		198	13,653	-56.8		247	13,716	-55.9		293	13,671	-54.3	
125----	255	15,035	-64.8		261	14,906	-59.8		222	15,077	-65.6		251	14,912	-60.1		162	14,804	-57.8		218	14,877	-57.2		251	14,834	-55.2	
100----					217	16,295	-60.7						213	16,308	-60.6		150	16,209	-58.0		154	16,287	-58.4		197	16,264	-56.3	
80-----													158	17,697	-60.2													

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

[2] Altitude changed from 980 meters to 966 meters October 19, 1950.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

YEAR 1950

Standard pressure surface (mb.)	San Antonio, Tex. (988 mb.)				San Juan, P. R. (1014 mb.)				Santa Maria, Calif. (1008 mb.)				S. Ste. Marie, Mich. (989 mb.)				Spokane, Wash. (931 mb.)				Swan Island, W. I. (1013 mb.)				Tacubaya, Mexico (774 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	364	240	20.0	68	364	19	24.6	85	365	71	12.6	83	365	221	2.0	83	364	722	8.9	63	364	10	25.6	80	315	2,306	16.2	
1,000--	364	129			364	143	24.0	82	365	136	12.8	80	365	127			364	121			364	127	25.0	80	315	62		
950----	364	577	20.3	64	364	595	21.0	82	365	576	14.4	63	365	547	2.9	71	364	554			364	582	21.8	81	315	524		
900----	364	1,040	18.0	66	364	1,059	17.9	81	365	1,026	15.5	43	365	980	1.2	68	364	1,000	8.8	56	363	1,045	18.9	76	315	1,001		
850----	364	1,528	15.6	64	363	1,547	15.1	77	365	1,509	13.8	37	365	1,439	- 0.7	65	364	1,471	5.8	57	363	1,534	16.1	71	315	1,496		
800----	364	2,041	13.3	55	363	2,059	12.8	69	365	2,017	11.1	34	365	1,921	- 2.6	63	364	1,964	2.4	58	363	2,048	13.4	62	315	2,024		
750----	364	2,585	10.9	44	363	2,607	10.7		365	2,560	8.1	33	365	2,437	- 4.7	58	364	2,488	- 1.2	59	363	2,597	10.8	55	315	2,577	14.6	
700----	364	3,155	7.6	38	362	3,172	8.0		365	3,119	4.9		365	2,972	- 7.0	54	364	3,030	- 4.6	58	359	3,162	8.1		315	3,152	10.4	
650----	362	3,764	3.9		362	3,787	4.8		364	3,724	1.1		363	3,554	- 9.9	51	364	3,615	- 8.2	54	359	3,778	5.0		313	3,771	5.7	
600----	359	4,407	- 0.3		357	4,429	1.4		364	4,358	- 2.9		360	4,160	-13.2	48	363	4,227	-11.9	52	359	4,419	1.5		312	4,416	1.0	
550----	356	5,099	- 4.7		353	5,128	- 2.4		363	5,045	- 7.4		356	4,821	-17.1	45	360	4,891	-16.0	50	358	5,118	- 2.5		306	5,116	- 3.3	
500----	355	5,841	- 9.7		348	5,875	- 6.9		362	5,778	-12.5		353	5,526	-21.7	43	358	5,600	-20.7	50	358	5,865	- 7.1		304	5,860	- 7.8	
450----	354	6,650	-15.2		346	6,694	-12.2		362	6,578	-18.3		351	6,298	-27.0	43	356	6,375	-26.0		357	6,687	-12.4		297	6,682	-12.7	
400----	353	7,527	-21.7		342	7,579	-18.4		361	7,442	-25.0		350	7,133	-32.8		354	7,215	-32.1		355	7,569	-18.7		295	7,562	-18.9	
350----	346	8,496	-29.0		338	8,561	-25.6		359	8,398	-32.2		347	8,059	-39.2		343	8,144	-39.0		354	8,550	-25.7		277	8,542	-26.4	
300----	342	9,579	-37.2		334	9,660	-34.1		354	9,469	-40.3		342	9,100	-45.8		332	9,188	-45.9		349	9,648	-34.2		262	9,630	-35.0	
250----	328	10,815	-46.4		329	10,910	-43.9		350	10,688	-49.3		336	10,299	-51.4		318	10,387	-52.2		340	10,897	-44.2					
200----	308	12,262	-56.2		320	12,370	-55.8		342	12,123	-57.0		322	11,737	-54.1		297	11,813	-55.7		330	12,355	-55.9					
175----	288	13,103	-60.5		312	13,208	-61.8		329	12,964	-59.1		303	12,592	-53.6		278	12,667	-55.0		323	13,192	-62.0					
150----	250	14,056	-64.7		296	14,147	-67.9		311	13,925	-60.8		280	13,581	-54.0		254	13,649	-54.8		305	14,129	-68.2					
125----	207	15,159	-68.2		277	15,231	-72.4		270	15,051	-63.2		235	14,746	-55.0		216	14,817	-55.6		275	15,209	-73.4					
100----					205	16,530	-75.7		216	16,419	-64.6		197	16,169	-56.0						236	16,500	-76.8					
80-----																					181	17,788	-74.9					
																					114							

Standard pressure surface (mb.)	Tampa, Fla. (1018 mb.)				Tatoosh Island, Wash. (1012 mb.)				Toledo, Ohio (994 mb.)				Washington, D. C.[3]			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	364	9	20.6	80	365	31	8.5	85	361	191	8.0	79				
1,000--	364	160	21.2	74	365	127	8.2	83	361	139			365	154	12.7	67
950----	364	606	19.2	67	365	554	7.0	75	361	568	8.3	66	365	587	11.0	64
900----	364	1,067	16.6	60	365	993	5.0	70	361	1,010	6.0	64	365	1,034	8.8	64
850----	364	1,552	13.8	62	365	1,458	2.6	67	361	1,477	4.1	60	365	1,505	6.5	61
800----	364	2,062	11.3	56	365	1,946	0.1	63	361	1,968	2.1	56	365	2,001	4.1	61
750----	364	2,603	8.8	48	365	2,467	- 2.7	57	361	2,494	- 0.1	52	365	2,530	1.6	57
700----	364	3,167	5.9		365	3,005	- 5.6	53	359	3,037	- 2.6	49	365	3,078	- 0.9	52
650----	362	3,773	2.5		365	3,588	- 8.9	51	355	3,629	- 5.7	45	365	3,672	- 4.0	48
600----	362	4,413	- 1.2		365	4,198	-12.4	49	351	4,246	- 9.2		365	4,293	- 7.5	
550----	359	5,105	- 5.3		363	4,861	-16.5	48	348	4,919	-13.1		361	4,969	-11.4	
500----	354	5,844	- 9.9		362	5,568	-21.0	46	347	5,635	-17.5		359	5,691	-16.0	
450----	351	6,656	-15.4		361	6,342	-26.2		344	6,421	-22.9		358	6,481	-21.4	
400----	350	7,528	-21.7		361	7,181	-31.9		340	7,270	-28.9		358	7,335	-27.5	
350----	349	8,497	-28.8		358	8,111	-38.4		336	8,212	-35.9		356	8,281	-34.4	
300----	348	9,582	-37.0		345	9,157	-45.2		323	9,264	-43.4		355	9,341	-42.0	
250----	346	10,819	-46.3		329	10,403	-51.6		306	10,467	-50.9		352	10,553	-50.0	
200----	335	12,267	-56.2		293	11,791	-55.2		286	11,896	-56.2		346	11,985	-56.7	
175----	326	13,106	-60.6		258	12,644	-55.0		266	12,739	-57.0		332	12,830	-58.5	
150----	313	14,055	-64.5						235	13,709	-57.5		317	13,795	-59.7	
125----	278	15,158	-68.1						199	14,858	-59.2		286	14,923	-61.1	
100----	241	16,492	-70.0										256	16,304	-61.9	
80-----	169	17,820	-68.9										204	17,680	-61.2	

Note: All observations scheduled at 0300, G.C.T. except at Ciudad Victoria, Mazatlan and Merida, where they are taken near 0200 G.C.T. "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of vapor-pressure over water. Upper air values of relative humidity at levels with temperatures less than 0°C, have formerly been computed and expressed on the basis of the vapor-pressure over ice. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

[3] Altitude changed from 25 meters to 88 meters on October 12, 1950

PILOT BALLOON DATA

Average monthly resultant winds

Table 21 — YEAR 1950

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N.Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S.C. (16 m.)			Cincinnati, Ohio (273 m.)			El Paso, Tex. (1,198 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	362	183	1.9	362	250	2.0	341	265	1.6	344	299	1.7	337	294	2.0	344	322	1.9	357	131	4.9	335	244	3.3	339	230	1.5	346	205	1.7	339	247	1.8	362	245	2.3
500	---	---	---	---	---	---	341	265	1.9	---	---	---	---	---	---	---	---	---	356	141	6.0	335	248	4.9	339	228	3.6	343	218	2.5	339	244	2.4	---	---	---
1,000	361	190	2.9	---	---	---	328	263	2.9	---	---	---	337	289	3.3	344	317	1.6	325	160	4.5	302	251	6.4	319	247	4.9	325	252	3.4	315	248	3.7	---	---	---
1,500	348	213	3.7	---	---	---	313	271	4.1	344	276	3.8	311	285	4.9	343	280	1.6	277	184	2.7	247	257	7.0	274	264	6.4	302	269	5.1	286	260	5.1	362	248	2.5
2,000	330	232	4.8	362	252	2.9	291	276	5.4	337	276	5.4	280	282	6.6	338	266	3.5	229	206	1.6							289	274	6.6	257	273	6.7	362	251	3.0
2,500	314	250	6.0	360	263	3.9	274	279	6.8	324	276	7.3	258	282	8.3	324	265	5.5	200	250	1.4							267	276	7.6	230	277	7.9	361	260	4.1
3,000	294	261	6.8	357	273	5.1				295	276	9.2	245	283	9.9	300	266	6.7	171	270	1.9							256	276	8.6	201	281	9.2	359	264	5.5
4,000	270	274	8.9	340	279	8.2				238	279	12.0	211	286	12.4	254	270	8.6										229	276	9.5				346	268	7.3
5,000	239	278	10.2	318	278	10.5				170	285	13.0	162	285	13.7	217	271	10.7										200	275	10.5				329	269	8.9
6,000	212	281	11.5	292	278	12.2				122	282	13.5																166	274	11.1				295	272	9.9
8,000	155	282	13.4	241	277	14.6																												240	273	12.0
10,000				173	276	17.5																												199	273	15.5

Altitude (meters) m.s.l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N.C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (663 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	359	237	2.0	365	278	2.5	337	248	1.5	344	276	1.8	346	93	1.6	339	239	2.0	365	203	1.0	339	203	0.8	334	308	1.7	360	107	3.1	344	200	1.1	341	255	1.0
500	---	---	---	---	---	---	337	243	2.3	---	---	---	343	190	1.0	339	246	2.8	---	---	---	339	224	1.8	333	307	1.6	359	108	3.3	341	206	1.9	341	233	2.2
1,000	---	---	---	---	---	---	334	247	3.6	343	269	3.5	331	241	2.5	313	255	4.0	365	204	1.5	313	244	2.9	332	263	1.2	352	109	2.0	305	254	1.8	325	243	3.5
1,500	---	---	---	365	277	2.5	321	258	5.1	339	273	5.7	314	258	3.9	274	270	5.7	365	221	2.2	277	264	4.1	321	237	2.8	340	94	.8	257	293	3.1	298	255	5.0
2,000	359	235	2.1	364	268	2.8	296	274	7.2	325	274	7.0	297	267	5.0	248	278	7.4	365	231	3.1	240	277	5.6	289	235	3.8	305	313	.3				271	264	6.4
2,500	359	242	2.8	361	254	3.7	271	283	10.1	294	276	8.6	276	272	5.5	222	284	9.2	361	241	3.9	210	288	6.8	244	241	4.1	272	297	1.0				260	270	7.3
3,000	349	250	3.7	349	253	5.1	247	278	10.5	257	279	9.6	260	272	6.5	190	287	9.7	357	251	5.0	195	288	8.4				260	284	1.4				237	274	8.8
4,000	317	267	6.5	312	267	7.3	207	279	12.9	201	282	11.5	210	275	7.5	153	291	12.3	345	263	6.8	159	292	11.0				218	269	2.8						
5,000	269	272	9.6	263	278	9.8							181	276	8.2				330	269	8.7															
6,000	224	274	11.6	217	281	11.1													303	268	10.4															
8,000																			254	271	13.0															
10,000																			177	271	15.3															

Altitude (meters) m.s.l.	New York, N.Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	338	271	1.6	349	274	3.3	358	191	2.1	350	269	0.9	365	254	0.9	347	354	2.2	335	268	1.6	344	249	1.0	348	130	1.7	349	274	3.6	320	283	1.6	337	229	2.1
500	333	257	3.6	349	276	2.4	358	191	2.2	350	263	1.2	365	251	1.1	---	---	---	335	277	2.0	344	244	2.0	348	142	2.1	348	285	2.3	320	274	2.6	337	216	3.4
1,000	306	273	5.6	326	277	2.0	349	201	3.1	329	256	2.6	365	235	1.5	347	352	2.2	322	273	3.2	309	244	3.6	339	160	2.5	310	288	1.2	270	265	3.6	311	215	4.4
1,500	274	281	6.9	306	280	2.2	323	235	4.5	308	264	4.6	364	226	2.0	346	311	3.1	294	277	5.0	287	261	4.8	315	187	2.4	295	283	1.2	219	271	4.5	275	218	4.8
2,000	228	283	7.7	291	283	2.4	294	257	6.3	287	273	6.4	361	235	2.6	323	291	5.0	252	284	6.9	252	270	6.7	300	227	2.6	286	277	1.7	203	278	5.9	226	225	4.1
2,500				281	289	2.9	276	266	7.5	264	278	8.4	355	245	3.5	305	288	7.4	227	287	8.7	226	275	8.5	270	249	3.6	282	273	2.7						
3,000				274	291	4.1	264	274	8.8	246	283	9.9	349	250	4.5	277	284	9.5	211	289	10.5	205	280	9.6	240	266	4.1	276	269	3.5						
4,000				264	279	5.5	238	278	11.5	203	287	12.7	333	260	5.8	217	287	12.1	170	291	13.3	178	287	11.2	213	278	6.2	263	262	5.3						
5,000				239	281	6.9	194	283	13.7	181	287	15.3	306	265	7.1	163	287	13.4	127	296	14.2	147	291	12.3	182	286	8.2	241	260	6.6						
6,000				225	283	8.0	165	284	15.2	158	287	17.0	273	268	9.0	117	285	13.5				115	296	14.0				224	260	8.0						
8,000													195	264	10.7													172	256	11.3						

Altitude (meters) m.s.l.	Spokane, Wash. (725 m.)			Washington, D.C. (24 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	331	212	2.7	332	241	1.2
500	---	---	---	332	251	2.7
1,000	331	216	4.1	319	262	4.5
1,500	313	228	4.9	301	273	6.8
2,000	286	238	5.1	272	278	8.7
2,500	250	245	5.2	239	279	10.1
3,000	220	252	5.8	221	278	11.4

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°; W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

Table 22

YEAR 1950

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Caribou, Me. (191 m.)			Charleston, S.C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N.C. (275 m.)			Hatteras, N.C. (3 m.)			International Falls, Minn. (358 m.)			Little Rock, Ark. (80 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	365	102	1.0	365	132	3.3	357	8	0.9	362	121	3.4	363	260	1.7	363	202	0.7	364	169	0.6	365	345	0.3	364	290	0.4	361	250	0.8	358	271	0.5	363	146	0.4
500	---	---	---	---	---	---	---	---	---	357	124	5.7	363	259	4.1	358	219	3.2	363	245	1.1	---	---	---	359	242	2.0	354	246	3.3	352	268	1.2	360	191	.7
1,000	---	---	---	365	79	2.1	344	308	2.9	357	117	3.7	362	268	5.3	353	247	3.8	362	263	3.1	---	---	---	359	250	4.1	343	254	4.4	351	277	2.3	355	248	2.6
1,500	---	---	---	365	247	1.2	342	300	4.9	357	102	1.6	359	270	6.3	348	259	4.3	360	266	5.1	362	343	.4	352	261	5.5	336	262	5.2	349	285	4.4	350	243	4.6
2,000	365	269	2.5	363	249	3.6	340	294	6.8	356	125	.3	353	272	7.3	343	263	4.9	358	271	6.3	360	260	1.9	349	268	6.6	333	265	6.2	345	290	5.8	345	256	5.9
2,500	365	273	4.6	361	256	5.0	338	293	8.6	354	235	.8	349	269	8.5	338	268	6.0	355	275	7.4	360	254	3.6	343	273	7.5	328	268	7.3	344	291	7.0	344	266	6.9
3,000	365	273	5.9	359	264	5.9	330	291	10.1	353	269	1.6	346	267	10.0	338	266	6.9	352	279	8.5	360	259	5.5	338	271	8.6	329	268	8.3	342	292	8.2	343	274	7.9
4,000	362	278	8.1	354	278	7.6	325	288	11.9	344	273	3.1	341	265	12.4	319	267	8.3	344	282	10.8	355	269	7.5	340	272	10.2	317	268	9.9	331	288	10.3	338	278	9.8
5,000	355	281	9.7	338	283	8.9	304	288	13.7	338	281	4.5	332	265	14.6	297	266	8.8	334	281	12.5	351	276	10.0	328	271	12.0	305	269	11.5	322	287	12.0	326	279	11.3
6,000	331	281	10.7	324	283	9.7	281	285	14.6	329	278	5.7	316	263	15.8	274	267	10.0	326	279	14.1	330	281	12.4	314	271	13.2	289	270	12.4	310	283	13.3	313	277	13.1
8,000	288	277	12.8	291	281	12.1	233	282	15.9	305	273	8.7	264	264	17.3				288	278	16.3	272	281	14.6	278	268	15.9				273	285	15.5	269	275	15.7
10,000	236	273	14.0	258	282	14.2	201	282	17.8	272	277	10.7							255	274	19.1	184	278	15.1	243	269	17.5				222	280	17.0	220	277	16.9
12,000				212	278	16.5				217	281	11.7							200	276	21.9																
14,000																			153	274	20.2															

Altitude (meters) m.s.l.	Medford, Oreg. (401 m.)			Miami, Fla. (12 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			San Antonio, Tex. (242 m.)			San Juan, P.R. (28 m.)			St. Cloud, Minn. (318 m.)			Santa Maria, Calif. (72 m.)			Sault Ste. Marie, Mich. (221 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	363	321	2.0	364	92	1.3	340	259	1.2	363	202	0.7	365	273	2.4	353	123	2.1	361	350	1.1	365	101	2.9	364	84	2.7	364	290	0.5	364	286	1.8	360	328	0.5
500	359	318	2.1	364	108	3.6	337	255	5.0	359	209	2.6	360	280	3.5	311	113	2.0	---	---	---	365	128	5.3	358	85	7.2	347	311	1.2	362	343	2.7	358	273	1.7
1,000	358	293	2.2	364	109	3.2	336	265	5.5	358	230	4.6	359	279	3.7	304	205	1.2	362	347	1.0	365	129	3.5	360	88	7.4	346	277	2.9	362	345	2.9	352	279	3.6
1,500	356	258	3.3	362	111	2.2	324	265	6.7	346	251	5.6	359	279	3.5	314	233	4.1	361	299	2.8	365	192	.6	362	87	7.0	334	284	4.8	362	346	2.6	343	278	5.3
2,000	356	247	4.6	361	110	1.4	318	265	8.1	343	264	6.6	359	280	3.5	328	259	5.2	358	293	5.0	365	237	2.9	362	87	6.2	329	284	6.0	360	331	2.6	331	279	6.8
2,500	352	250	5.9	361	138	.7	312	265	9.6	338	270	7.6	359	279	4.0	339	272	6.4	353	290	6.8	365	255	4.1	362	88	5.0	330	285	7.4	360	309	3.3	327	279	8.3
3,000	348	252	7.3	357	241	.7	304	263	11.0	339	275	8.8	357	280	5.0	340	278	7.6	352	289	8.9	364	266	4.8	361	89	4.9	331	286	8.9	359	294	4.3	317	283	9.2
4,000	342	261	9.7	356	251	2.0	297	264	13.0	331	276	10.7	350	277	6.8	331	282	9.8	341	286	12.4	360	274	6.4	358	81	3.4	325	283	11.2	352	282	6.1	293	282	10.7
5,000	325	266	11.4	353	263	3.7				320	276	12.1	340	280	8.9	326	279	11.1	331	286	14.4	352	281	8.3	353	62	2.1	315	283	12.8	344	277	7.8	271	282	11.7
6,000	298	262	12.6	350	268	5.7				303	274	13.6	329	280	10.0	322	281	12.9	313	281	15.9	345	279	10.0	345	349	1.0	301	281	14.6	335	273	9.0	246	279	13.0
8,000	246	270	13.3	333	273	9.4				270	273	16.2	286	278	11.4	294	275	16.3	281	275	18.6	317	276	13.1	335	284	5.2	250	278	16.1	314	267	11.1	189	278	15.6
10,000				320	275	13.7							217	279	11.0	262	276	19.2	213	270	19.8	275	276	14.8	328	272	11.5	209	277	19.4	286	267	12.0			
12,000				291	276	15.6										222	274	20.6	170	269	19.0				320	271	15.4				237	264	12.4			
14,000				236	275	14.4										166	275	17.2							297	279	13.0				193	264	12.1			
16,000																									224	280	6.5									

Altitude (meters) m.s.l.	Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	364	191	1.8	349	166	2.2
500	---	---	---	347	215	2.8
1,000	362	215	3.5	341	229	3.5
1,500	360	236	5.0	336	234	3.7
2,000	358	247	5.8	335	242	4.4
2,500	355	253	6.6	334	249	5.5
3,000	349	261	7.4	332	253	6.5
4,000	336	267	9.5	322	261	8.7
5,000	319	271	11.6	306	267	10.6
6,000	300	273	12.3	288	269	11.9
8,000	237	278	13.9	245	266	13.7

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.; directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

Note: Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three.

See note following table 3 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.

SOLAR RADIATION DATA

Table 31c.-Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during 1950

YEAR 1950

	January	Langley	February	Langley	March	Langley	April	Langley	May	Langley	June	Langley	July	Langley	August	Langley	September	Langley	October	Langley	November	Langley	December	Langley
	1	67	29	96	26	105	2	126	30	309	4	170	2	173	30	189	3	57	1	105	29	104	3	66
	2	30	30	100	27	110	3	135	1	56	5	122	3	266	31	212	4	209	2	123	30	109	4	70
	3	18	31	35	28	99	4	120	2	235	6	146	4	206	1	80	5	204	3	111	31	53	5	50
	4	84	1	126	1	88	5	61	3	143	7	140	5	231	2	292	6	97	4	141	1	90	6	46
	5	30	2	53	2	122	6	267	4	261	8	187	6	298	3	162	7	75	5	77	2	72	7	39
	6	10	3	24	3	82	7	180	5	115	9	164	7	240	4	250	8	137	6	91	3	72	8	20
	7	54	4	41	4	78	8	242	6	178	10	199	8	295	5	302	9	208	7	218	4	47	9	75
Averages		42		68		98		162		185		161		244		212		141		124		78		52
	8	35	5	160	5	156	9	196	7	179	11	201	9	243	6	83	10	214	8	120	5	72	10	53
	9	61	6	57	6	76	10	86	8	72	12	69	10	321	7	120	11	52	9	162	6	52	11	50
	10	15	7	125	7	79	11	204	9	99	13	210	11	270	8	111	12	109	10	33	7	59	12	77
	11	43	8	68	8	156	12	197	10	115	14	274	12	283	9	190	13	239	11	146	8	150	13	48
	12	42	9	45	9	157	13	189	11	262	15	245	13	203	10	230	14	176	12	52	9	82	14	58
	13	21	10	138	10	73	14	197	12	238	16	149	14	265	11	312	15	159	13	150	10	67	15	77
	14	79	11	37	11	182	15	173	13	126	17	157	15	281	12	86	16	143	14	153	11	72	16	42
Averages		42		90		126		177		156		186		267		162		156		116		79		58
	15	63	12	76	12	144	16	120	14	78	18	127	16	198	13	139	17	72	15	84	12	112	17	89
	16	66	13	136	13	40	17	126	15	238	19	169	17	299	14	264	18	66	16	68	13	60	18	48
	17	67	14	50	14	154	18	155	16	145	20	224	18	215	15	162	19	85	17	73	14	51	19	56
	18	81	15	25	15	153	19	285	17	139	21	247	19	181	16	189	20	158	18	85	15	91	20	69
	19	75	16	98	16	136	20	129	18	198	22	148	20	83	17	252	21	180	19	100	16	99	21	50
	20	53	17	123	17	125	21	220	19	63	23	162	21	111	18	263	22	96	20	70	17	89	22	83
	21	76	18	123	18	145	22	223	20	213	24	282	22	105	19	203	23	68	21	48	18	54	23	80
Averages		69		90		128		180		154		194		170		210		104		75		79		68
	22	43	19	80	19	70	23	157	21	180	25	308	23	186	20	153	24	99	22	137	19	63	24	77
	23	59	20	80	20	99	24	288	22	79	26	122	24	139	21	75	25	61	23	35	20	93	25	80
	24	7	21	89	21	54	25	132	23	259	27	211	25	241	22	230	26	290	24	34	21	19	26	61
	25	68	22	76	22	198	26	56	24	300	28	201	26	275	23	221	27	201	25	85	22	52	27	43
	26	48	23	41	23	52	27	173	25	244	29	214	27	166	24	224	28	231	26	65	23	102	28	53
	27	69	24	119	24	172	28	170	26	207	30	244	28	197	25	268	29	141	27	61	24	36	29	29
	28	57	25	81	25	194	29	89	27	70	1	265	29	169	26	226	30	121	28	102	25	29	30	49
																							31	32
Averages		50		81		120		152		191		224		196		200		163		74		56		53
					26	93			28	296					27	235					26	51		
					27	47			29	208					28	149					27	57		
					28	72			30	150					29	213					28	48		
					29	171			31	234					30	273					29	89		
					30	108			1	116					31	96					30	105		
					31	248			2	114					1	178					1	83		
					1	112			3	219					2	220					2	54		
Averages						121				191						195						70		

Note.--Langley is the unit used to denote one gram calorie per square centimeter.

SOLAR RADIATION DATA

Table 33a-Average daily values (direct and diffuse) received on a horizontal surface, tabulated in langleys, and the percentages of normal YEAR 1950

Station	January		February		March		April		May		June		July		August		September		October		November		December		Annual	
	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%
Honolulu, T.H.	350	95	416	98	582	103	526	97	620	100	569	98	618	100	615	100	604	99	535	101	424	99	349	100	517	99
Pearl Harbor, T.H.	333	101	373	101	547	102	492	95	596	100	552	99	633	101	585	100	584	100	518	100	399	100	352	99	497	100
Brownsville, Tex.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	634	---	528	---	475	---	366	---	345	---	---	---
Gainesville, Fla.	300	96	390	98	430	98	584	102	585	104	577	108	502	106	501	113	356	93	270	85	320	115	264	110	423	103
*Apalachicola, Fla.	347	---	386	---	439	---	592	---	628	100	634	103	516	99	571	101	478	---	403	---	380	---	269	96	470	---
*Lake Charles, La.	212	---	333	---	405	---	481	---	531	100	591	102	536	98	578	101	465	103	443	102	334	99	245	100	430	---
*El Paso, Tex.	350	---	427	---	586	---	675	---	715	---	739	101	650	100	688	101	560	101	502	100	411	100	348	100	554	---
*Ft. Worth, Tex.	202	---	291	99	458	100	471	101	529	99	637	100	510	97	563	101	445	100	411	100	341	100	252	102	426	---
Charleston, S.C.	---	---	---	---	---	---	602	---	557	---	604	---	505	---	538	---	398	---	325	---	321	---	201	---	---	---
Griffin, Ga.	---	---	---	---	---	---	564	---	577	---	607	---	503	---	522	---	420	---	339	---	294	---	190	---	---	---
*Phoenix, Ariz.	313	---	391	---	525	---	665	---	751	---	774	101	657	98	662	105	572	100	491	100	370	100	311	101	539	---
Riverside, Calif.	---	---	300	98	383	96	437	90	503	92	623	107	570	97	522	97	441	95	365	102	271	96	227	107	---	---
*Santa Maria, Calif.	267	---	373	104	428	85	601	99	615	99	683	99	679	105	649	100	491	98	451	100	299	101	250	99	482	---
*Albuquerque, N.M.	298	---	367	---	523	---	636	---	717	---	748	---	664	---	638	---	507	---	467	100	356	100	298	100	518	---
*Inyokern, Calif.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--	340	99	269	99	---	---
Hatteras, N.C.	---	---	---	---	---	---	---	---	547	---	588	---	534	---	607	---	414	---	348	---	289	---	198	---	---	---
*Oklahoma City, Okla.	211	---	307	---	448	---	534	---	535	97	637	100	459	96	569	102	420	100	404	101	---	---	---	---	---	---
Raleigh, N.C.	---	---	---	---	---	---	538	---	508	---	598	---	491	---	514	---	360	---	316	---	274	---	189	---	---	---
*Oak Ridge, Tenn.	119	---	219	99	353	100	505	102	450	97	560	105	466	97	439	100	371	102	319	102	195	96	181	107	348	---
*Las Vegas, Nev.	284	---	376	---	514	---	656	98	738	100	792	102	668	96	627	99	536	99	422	97	333	102	249	98	516	---
Nashville, Tenn.	126	88	213	104	329	105	458	108	416	87	586	112	468	94	417	93	347	93	325	111	195	99	131	101	334	99
Stillwater, Okla.	---	---	---	---	---	---	---	---	475	---	601	---	431	---	518	---	364	---	366	---	284	---	218	---	---	---
Fresno, Calif.	199	108	336	127	445	107	644	115	717	109	781	111	742	107	707	112	497	97	378	98	198	76	123	76	481	105
Davis, Calif.	186	91	295	111	371	99	535	98	619	98	711	101	692	100	514	85	448	92	330	92	201	87	103	70	417	95
Washington, D.C.	153	95	187	83	327	102	409	100	387	80	576	112	452	91	472	106	280	76	247	85	227	112	142	96	322	95
Ely, Nev.	---	---	---	---	---	---	---	---	---	---	---	---	572	---	621	---	443	---	416	---	411	---	200	---	---	---
*Seabrook, N.J.	147	---	168	---	328	---	408	---	409	---	546	---	484	---	492	101	393	127	278	103	222	100	146	99	335	---
*Indianapolis, Ind.	141	---	179	---	312	---	411	---	540	---	593	---	580	---	512	---	393	---	334	---	175	102	157	104	361	---
*Grand Lake, Colo.	194	96	301	100	366	98	510	100	603	104	739	102	556	98	510	101	414	100	414	101	206	98	172	96	415	100
*Salt Lake City, Utah	156	96	275	103	354	100	507	100	---	---	---	---	---	---	603	102	409	99	343	99	169	91	66	55	---	---
New York, N.Y.	112	87	200	101	314	106	357	93	349	77	508	105	465	98	390	98	272	81	258	97	150	94	125	102	292	95
*Sayville, N.Y.	106	---	144	---	336	---	372	---	415	---	583	---	495	---	430	---	314	---	281	104	185	98	132	102	316	---
State College, Pa.	121	91	154	84	296	102	355	90	427	94	554	108	479	95	452	101	262	75	265	106	159	105	128	102	304	96
Lincoln, Nebr.	186	97	258	102	343	100	426	101	504	102	657	119	477	83	518	107	386	96	349	116	218	105	176	107	375	102
*Upton, N.Y.	115	---	161	---	384	---	360	---	413	---	542	103	463	101	419	96	365	120	287	104	172	98	139	104	318	---
Cleveland, Ohio	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	351	---	248	---	130	---	109	---	---	---
Newport, R.I.	116	75	174	73	368	109	362	86	451	94	593	109	528	102	449	97	364	97	288	102	170	96	124	97	332	97
Put-in-Bay, Ohio	123	93	170	84	320	107	364	91	535	110	500	87	618	110	536	109	378	101	290	105	162	109	135	116	344	101
East Wareham, Mass.	108	75	161	71	337	108	341	84	432	94	535	104	486	97	422	94	326	92	279	106	172	105	127	89	311	95
Blue Hill, Mass.	120	76	183	77	380	114	387	97	497	103	602	116	553	108	464	100	343	95	302	107	173	103	127	91	344	102
Boston, Mass.	103	90	157	82	331	113	332	92	453	109	545	112	490	103	398	99	305	95	232	98	143	113	102	91	299	101
*Medford, Oreg.	126	---	220	---	332	---	504	---	676	---	640	---	765	---	657	---	447	99	241	95	142	100	85	93	403	---
*Amherst, Mass.	100	---	181	---	341	---	354	---	447	---	582	---	527	---	---	---	---	---	---	---	156	94	127	103	---	---
*Lynn, Mass.	115	---	239	---	373	---	410	---	465	---	565	---	515	98	458	102	---	---	276	101	138	99	107	102	---	---
Ithaca, N.Y.	---	---	---	---	---	---	305	92	415	93	537	104	508	98	461	97	295	85	249	101	115	92	102	98	---	---
*Albany, N.Y.	---	---	183	---	343	101	364	97	441	97	603	104	535	100	446	99	312	101	257	102	---	---	---	---	---	---
*Lander, Wyo.	220	---	324	---	442	---	600	---	595	---	716	---	637	96	611	101	415	99	365	100	234	100	171	97	444	---
East Lansing, Mich.	79	74	160	88	253	97	282	81	453	116	497	107	503	107	410	103	289	99	211	97	98	94	78	85	276	100
Madison, Wis.	136	89	208	94	314	100	366	90	542	113	574	110	599	111	463	101	356	103	274	110	171	114	153	125	346	105
*Boise, Idaho	115	---	225	---	307	---	504	---	687	---	621	---	715	---	555	97	453	100	268	96	150	99	94	93	391	---
*Portland, Maine	116	---	193	---	355	---	362	98	511	98	580	101	570	102	468	96	375	100	299	101	184	100	148	103	347	---
Toronto, Ontario	78	83	159	94	279	107	361	98	441	99	545	102	499	101	406	96	280	88	217	100	107	103	89	97	288	98
*Rapid City, S. Dak.	187	---	262	---	428	---	486	---	627	---	684	102	635	98	---	---	347	103	---	---	194	98	158	99	---	---
*Ottawa, Ontario	101	---	211	---	382	---	397	---	475	---	553	---	532	99	439	99	355	102	202	99	120	---	122	98	324	---
*St. Cloud, Minn.	160	---	293	---	359	---	407	---	484	---	597	---	567	---	495	99	355	104	271	100	174	98	150	100	359	---
North Head, Wash.	---	---	---	---	229	---	384	---	491	---	460	---	475	---	440	---	319	---	163	---	97	---	60	---	---	---
Sault Ste. Marie, Mich.	---	---	---	---	---	---	---	---	---	---	590	---	529	---	472	---	283	---	---	---	---	---	---	---	---	---
Bismarck, N. Dak.	---	---	---	---	---	---	---	---	---	---	688	---	639	---	595	---	363	---	289	---	179	---	127	---	---	---
*Caribou, Maine	119	---	242	---	397	---	379	---	569	---	461	97	520	102	461	---	351	100	218	103	108	94	95	103	327	---
*Great Falls, Mont.	153	---	241	---	364	---	424	---	576	99	595	100	670	100	553	99	401	99	280	100	168	97	97	96	377	---
*Spokane, Wash.	136	---	208	---	301	---	459	---	639	95	560	97	669	100	590	101	465	100	193	93	131	97	82	99	369	---
Seattle, Wash. (U. of W.)	---	---	---	---	---	---	---	---	---	---	---	---	543	---	486	---	339	---	147	---	89	---	55	---	---	---
Glasgow, Mont.	---	---	263	---	409	---	498	---	576	---	613	---	681	---	515	---	362	---	252	---	155	---	110	---	---	---
*Winnipeg, Manitoba	138	---	252	---	385	---	442	---	467	---	567	---	557	101	510	102	342	99	195	100	112	97	101	99	337	---
*Edmonton, Alberta	84	---	163	---	290	---	422	---	526	---	424	---	---	---	294	98	280	96	169	102	103	98	72	103	---	---
Fairbanks, Alaska	15	107	86	126	266	134	434	117	475	102	573	114	489	108	385	123	197	110	92	110	30	115	5	100	254	114
*Aklavik, MacKenzie	4	---	58	---	210	---	418	---	620	---	499	---	451	96	271	102	167	104	79	99	16	89	2	100	233	---

Note: Langley is the unit used to denote one gram calorie per square centimeter.

* Record more than one year but less than five years old--normals computed by using formula $\frac{a+2b+c}{4}$ where "a" is value of preceding month, "b" is value of current month, and "c" is value of following month (generally of preceding year). Normals at other stations are computed average values.

Normals not computed for stations with less than one year's record.

W.B.O., Washington, D.C.---9/20/51---2300

Chart I. Departure from Normal of Annual Average Temperature (°F.) at Surface, 1950.



Chart II. Percentage of Normal Annual Precipitation, 1950.



Chart III. Tracks of Tornadoes, 1950.

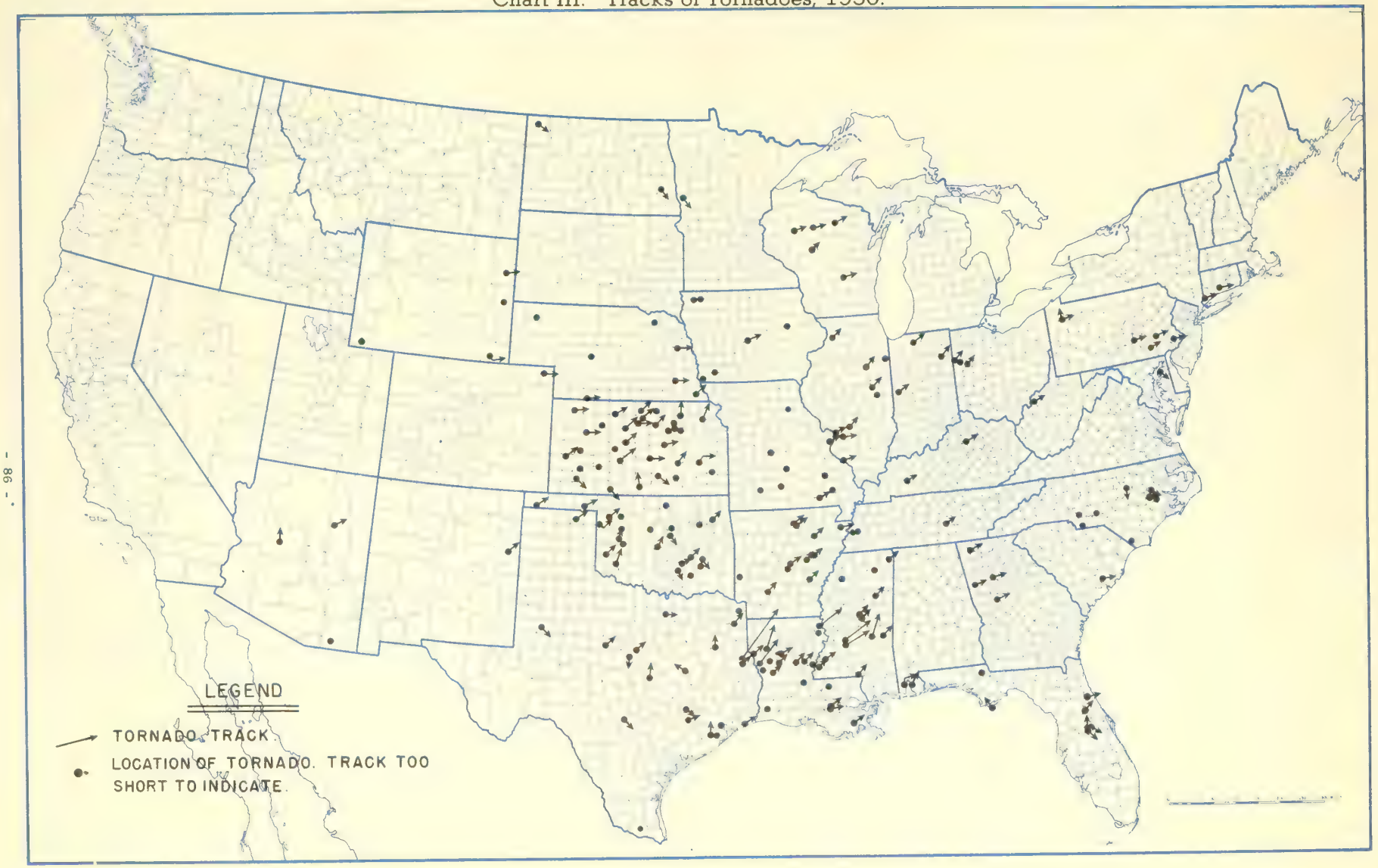
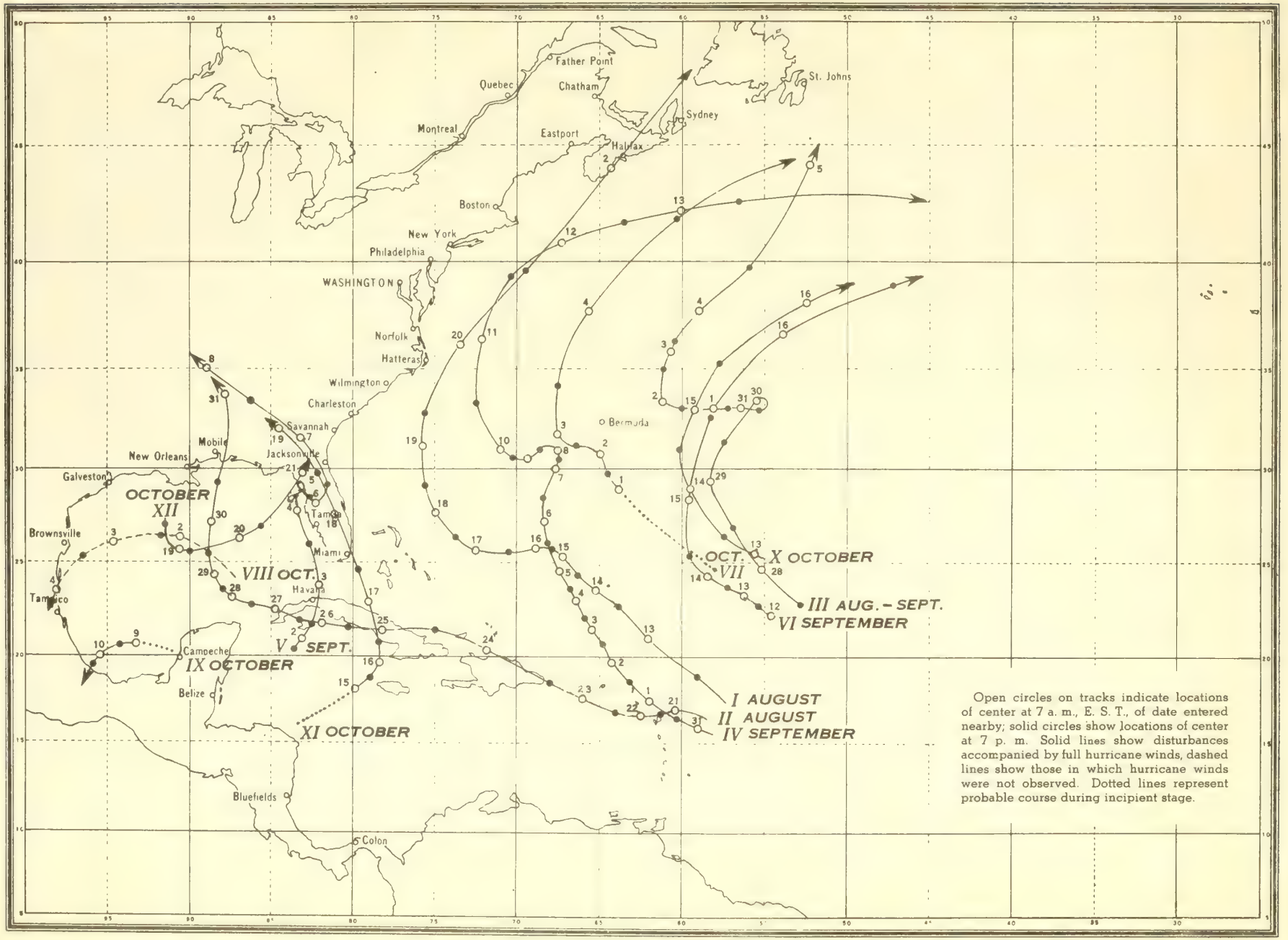
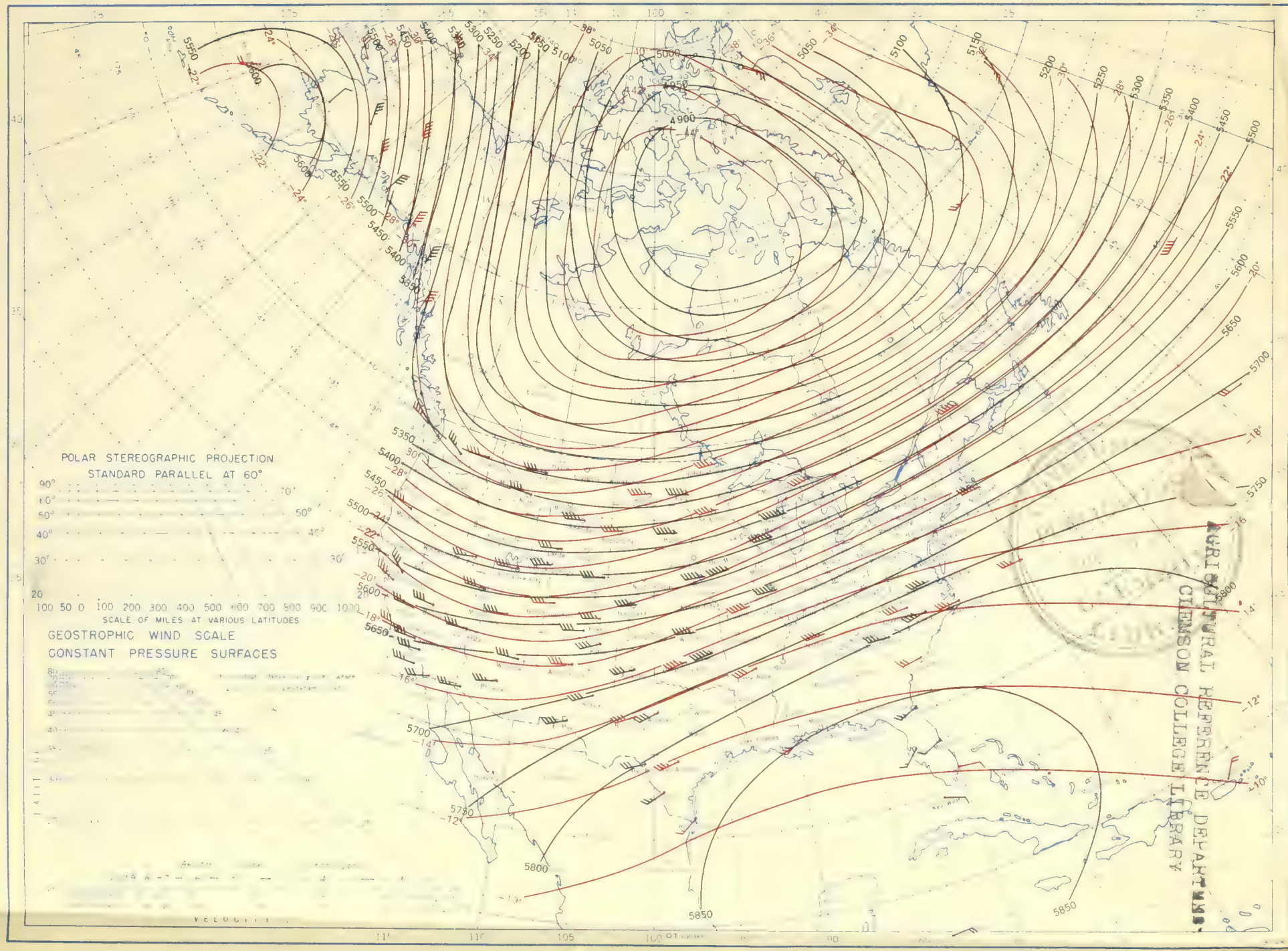


Chart IV. Tracks of North Atlantic Hurricanes and Tropical Disturbances, 1950.



Open circles on tracks indicate locations of center at 7 a. m., E. S. T., of date entered nearby; solid circles show locations of center at 7 p. m. Solid lines show disturbances accompanied by full hurricane winds, dashed lines show those in which hurricane winds were not observed. Dotted lines represent probable course during incipient stage.

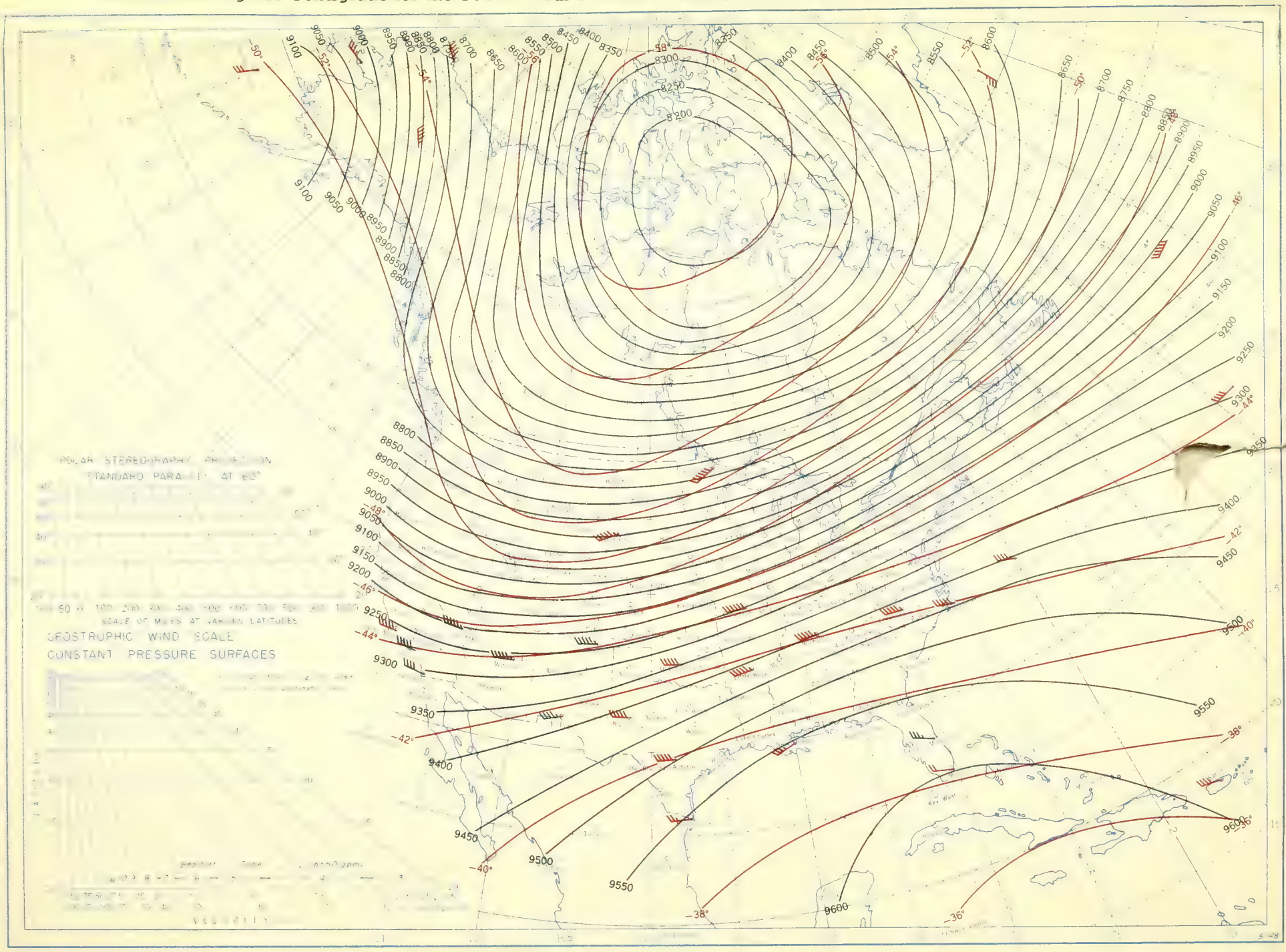
Chart X, January 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 500-millibar Pressure Surface, and Resultant Winds at 5,000 Meters (m. s. l.)



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Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart XI, January 1950. Contour Lines of Mean Dynamic Height (Geopotential) in Units of 0.98 Dynamic Meters and Mean Isotherms in Degrees Centigrade for the 300-millibar Pressure Surface, and Resultant Winds at 10,000 Meters (m. s. l.)



Contour lines and isotherms based on radiosonde observations at 0300 G. C. T. Winds indicated by black arrows based on pilot balloon observations at 2100 G. C. T.; those indicated by red arrows based on rawins taken at 0300 G. C. T.

Chart IV. Percentage of Clear Sky Between Sunrise and Sunset, January 1950

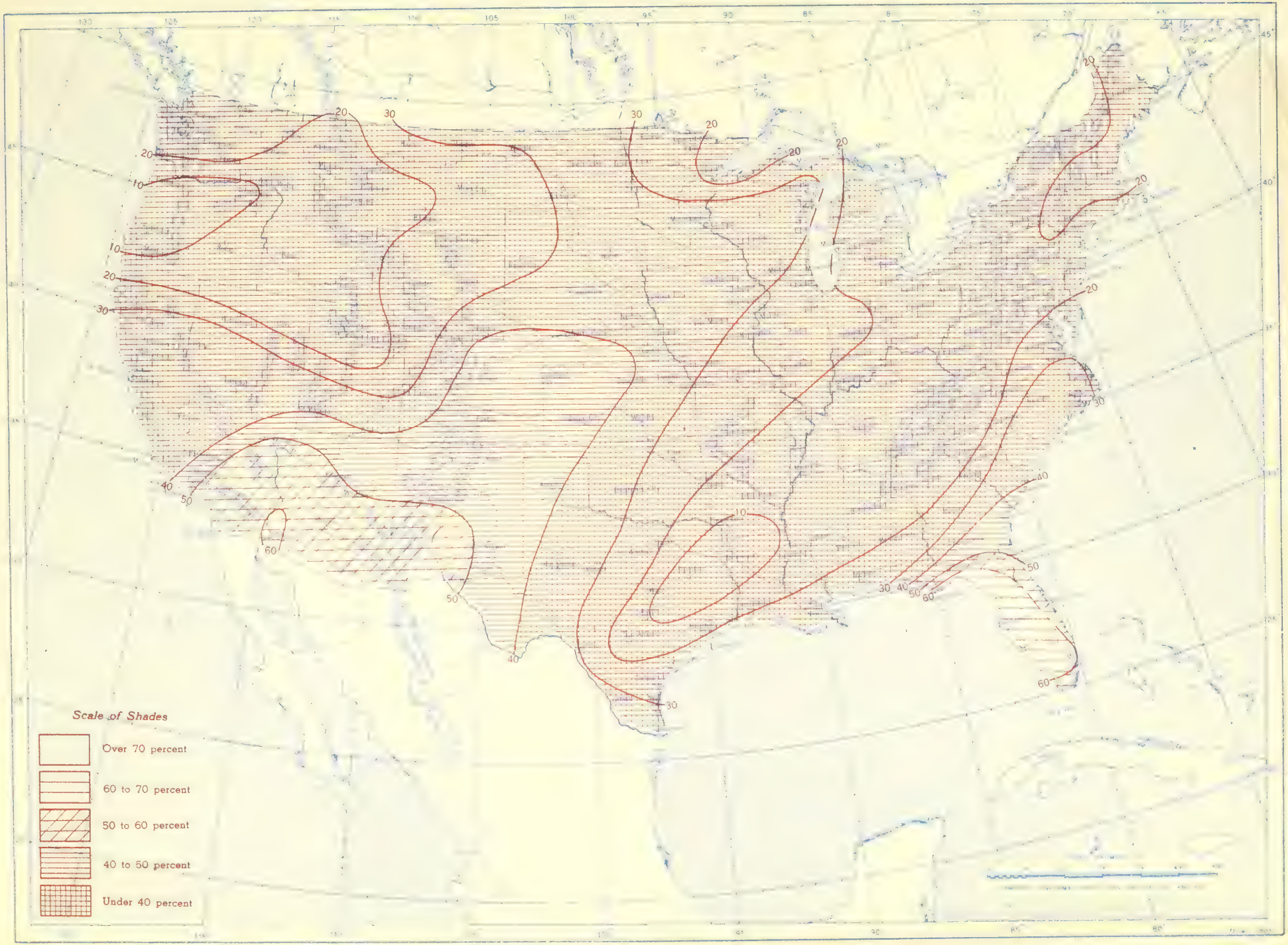
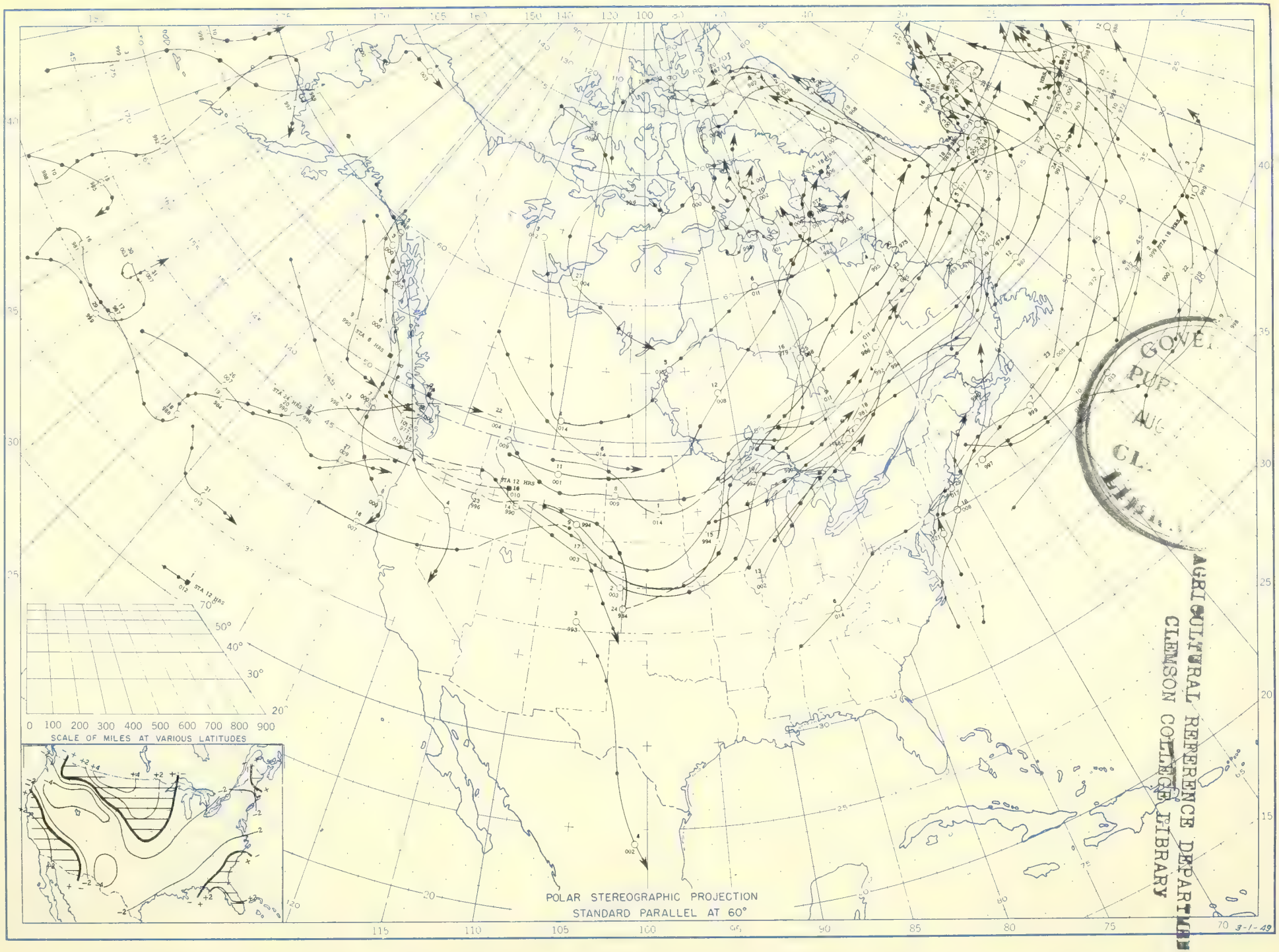


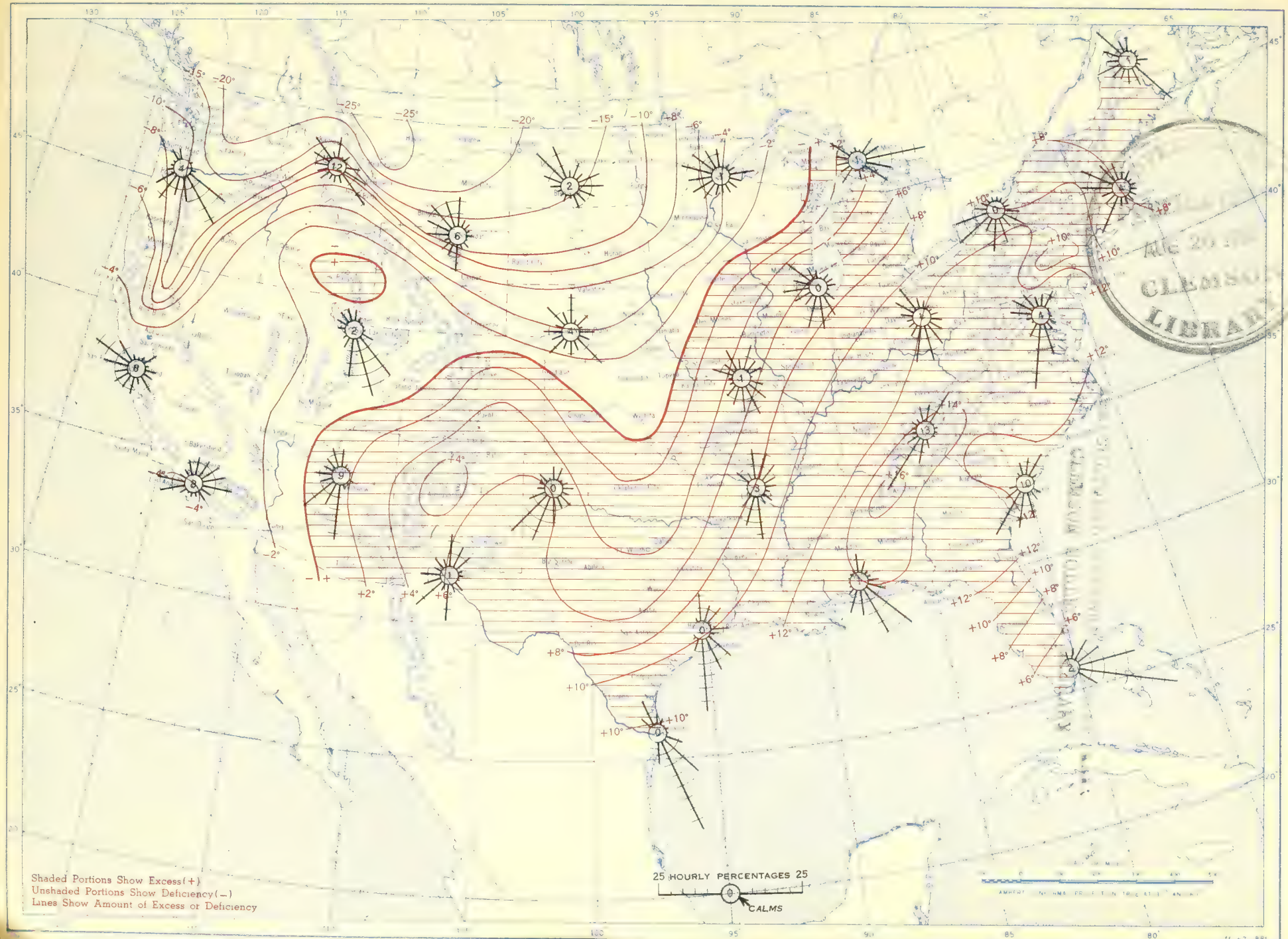
Chart III. Tracks of Centers of Cyclones, January 1950. (Inset) Change in Mean Pressure from Preceding Month



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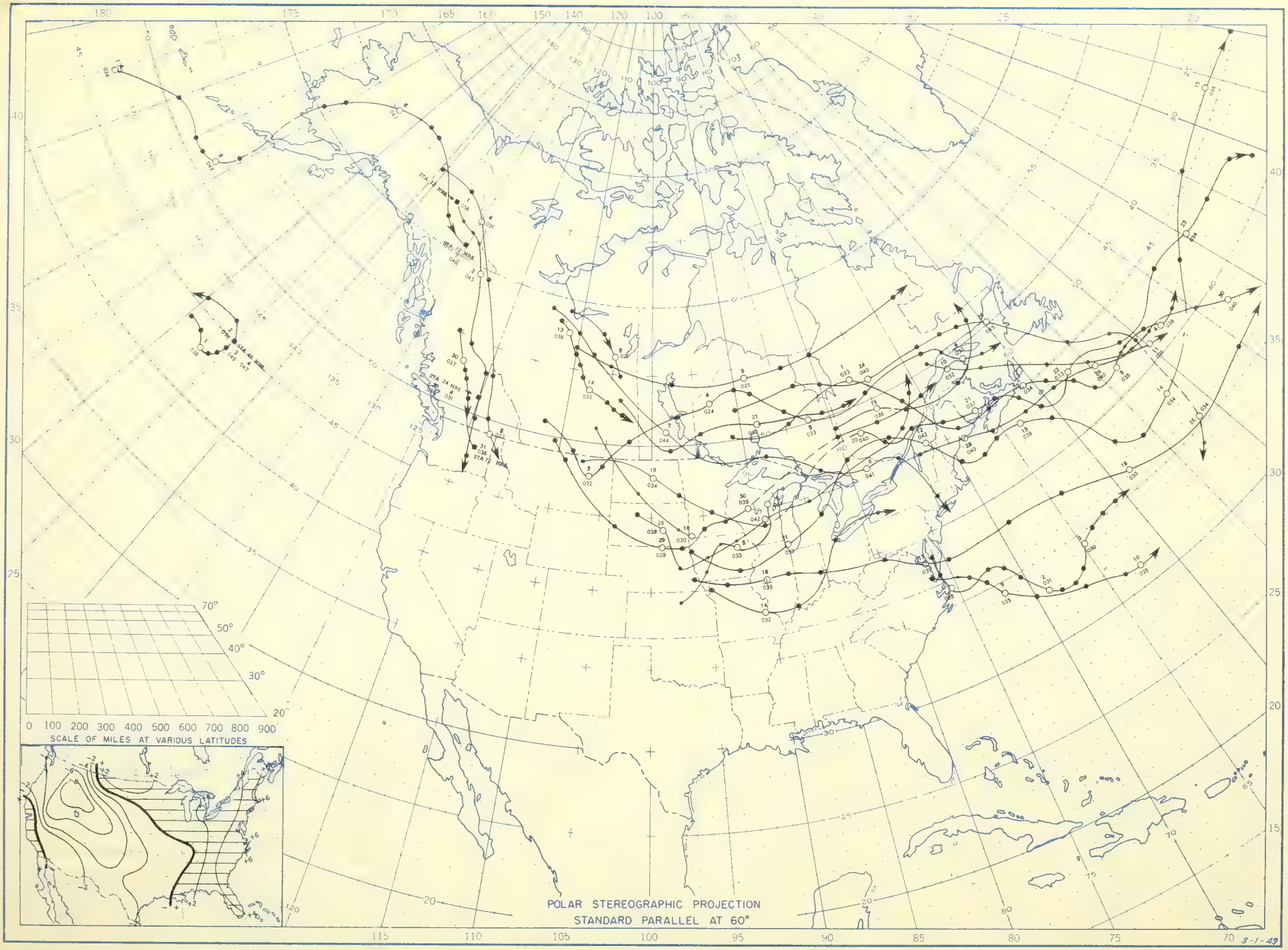
Circle indicates position of cyclone at 7:30 a. m. (75th meridian time) Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart I. Departure (°F.) of the Mean Temperature from the Normal, and Wind Roses for Selected Stations, January 1950



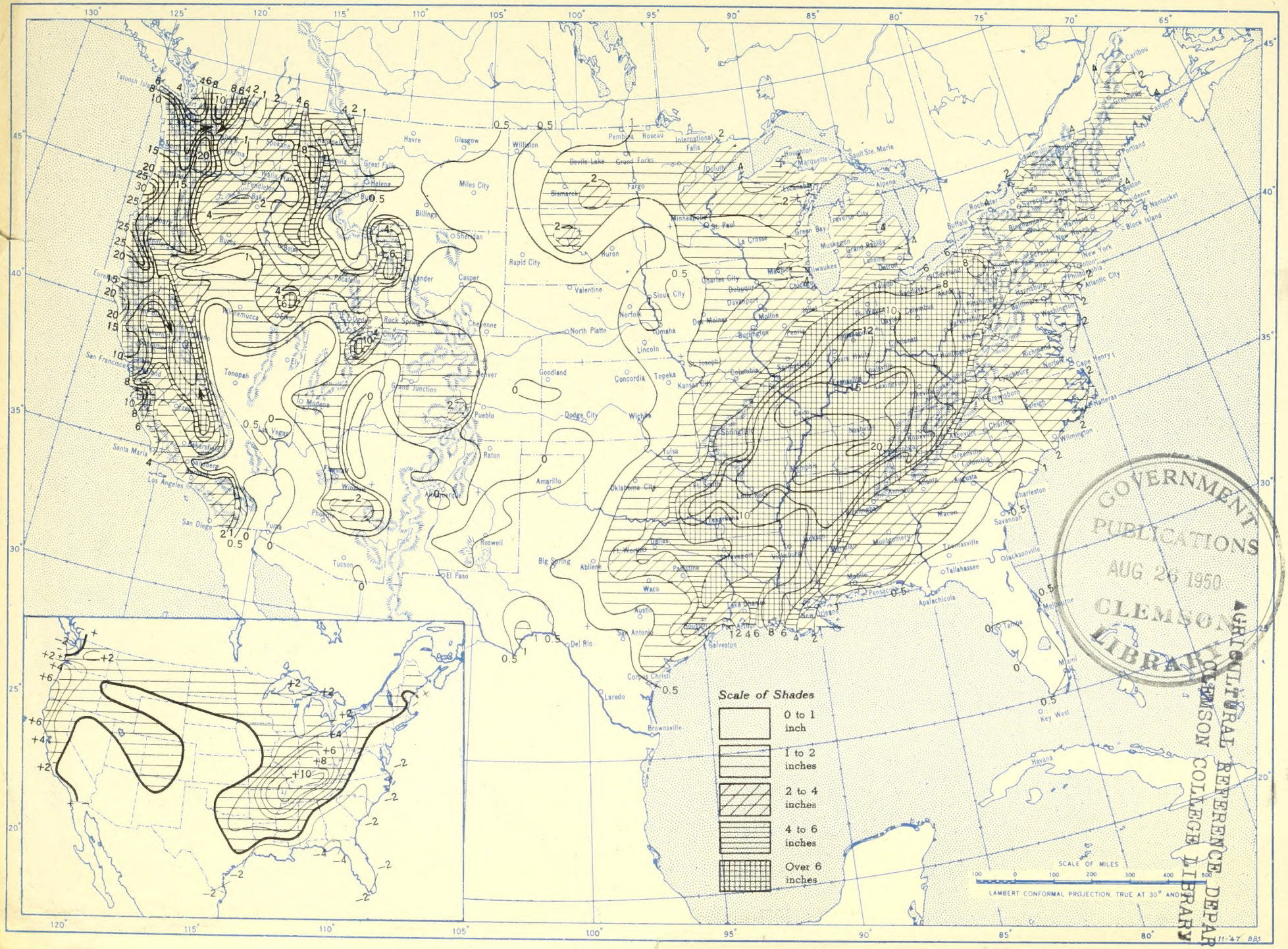
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Chart II. Tracks of Centers of Anticyclones, January 1950. (Inset) Departure of Monthly Mean Pressure from Normal



Circle indicates position of anticyclone at 7:30 a. m. (75th meridian time). Dots indicate intervening 6-hourly positions. Figure above circle indicates date, and figure below, pressure to nearest millibar. Only those centers which could be identified for 24 hours or more are included.

Chart V. Total Precipitation, Inches, January 1950. (Inset) Departure of Precipitation from Normal



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Chart VI. Mean Isobars (mb.) at Sea Level and Mean Isotherms (°F.) at Surface., January 1950

